







# Chambers's Practical Concentric Arithmetics.

## Book III.

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### Exercise 1.—Notation to 9999—Addition and Subtraction.

- (1) Write in words the following: 1290, 2063, 1906, 3174, 4009, 5070.
- (2) Write the following in figures: two thousand and nine; one thousand five hundred; six thousand five hundred and seven; seven thousand and fifty-six.
- (3) Queen Victoria began to reign in 1837, and died in 1901. How many years did she reign?
- (4) On Bank Holiday 4 trains went from Bolton to Blackpool. In the first train there were 769 passengers, in the second 587, in the third 695, and in the fourth 87. How many passengers were there in all?
- (5) From a mine 694 tons of coal were got in one week, 587 tons the next, 786 tons the next, and 487 tons the next. How many tons were got in four weeks?
- (6) A ship brought 6000 cases of fruit to Liverpool. There were 4569 cases of apples, 396 cases of lemons, and 89 cases of dried plums. The remaining cases contained figs. How many cases of figs were there?
- (7) A wool merchant gave an order for 5000 pounds of wool. He received 879 pounds one day, 675 pounds the next, 786 pounds the next, and 589 pounds the next. How much wool had he still to receive?

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- (8) In a shop there are four overcoats marked as follows: £1, 18s. 9d., £2, 12s. 6d., £3, 17s. 8d., and £1, 14s. 6d. How much are they all worth?
- (9) A woman had 3 sovereigns, 3 half-crowns, 3 half-sovereigns, and 3 sixpences in her purse. She bought flour for 16s.  $9\frac{1}{2}$ d., beef for 8s.  $10\frac{1}{2}$ d., and boots for £1, 17s. 8d. How much had she then?
- (10) How much less than £10 is £3, 4s.  $1\frac{1}{2}$ d.?

Exercise 2.—Notation to 9999—Multiplication and Division.

- (1) A mill used 67 tons of coal in a week. How many tons less than a thousand were used in 12 weeks?
- (2) A farmer had 4000 sheep. He kept 784 on the home farm, and divided the rest into 6 equal flocks for other farms. How many sheep were sent to each farm?
- (3) A man ordered 7000 eggs. He received 9 boxes, each containing 684. How many eggs should he still get?
- (4) A greengrocer bought 584 bananas. One-eighth of these were bad. How many good ones were there?
- (5) A sack of potatoes weighs 148 lb., and a sack of corn 98 lb. What is the total weight of 8 sacks of potatoes and 12 sacks of corn?
- (6) Multiply the difference between 290 and 98 by 9.
- (7) Divide the sum of 798, 499, 371, and 4101 by 9.

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- (8) A furniture dealer has four chairs and a couch in his shop. The price of the couch is £3, 16s. 8d., and each chair is worth half as much as the couch. How much are the four chairs worth?
- (9) A farmer has £1, 15s.  $7\frac{1}{2}$ d. left after buying 9 lambs at £1, 4s. 8d. each. How much had he at first?
- (10) A room costs 17s. 7d. to paper and 14s.  $9\frac{1}{2}$ d. to paint. How much will 7 similar rooms cost?
- (11) 12 yards of dress material cost £1, 18s. 6d. How much will 9 yards cost at the same rate?
- (12) A butcher took £5 with him to market. He bought a lamb for 12s. 6d., and spent the rest on 5 pigs. How much were the pigs each?
- (13) If £9, 15s.  $8\frac{1}{2}$ d. is divided equally among 5 men and 6 women, how much will each receive?
- (14) A table costs £1, 14s. 6d., and a chair 17s.  $8\frac{1}{2}$ d. What is the total cost of 4 tables and 3 chairs?
- (15) A man earns £1, 16s. 9d., and a boy half as much. How much will 5 boys and a man earn?
- (16) Show by drawing a line how much farther  $6\frac{1}{2}$  miles is than  $4\frac{7}{8}$  miles. (Let 1 inch = 1 mile.)
- (17) Make up a sum about sharing £1, 10s. 0d., and work it.

Exercise 3.—Money to £20—Multiplication by Factors.

- (1) What will 16 yards of cloth cost at 7s.  $8\frac{1}{2}$ d. per yard? How much will 24 yards cost?
- (2) A greengrocer bought 15 boxes of oranges, each containing 368. How many oranges had he?
- (3) 24 sheets of paper make a quire. How many sheets are there in a box containing 259 quires?
- (4) A barrel of oil contains 36 gallons. On a canal-boat there are 267 such barrels. How many gallons of oil are there on the boat?
- (5) A tea merchant buys 145 boxes of tea, with 56 pounds in a box. How many pounds does he buy?
- (6) (a)  $(369 \times 25) - (197 \times 35)$ ; (b)  $(258 \times 16) - (129 \times 32)$ .
- (7) In a mill there are 9 rows of windows, with 26 in a row, and each window has 16 panes of glass. How many panes are there?
- (8) Find the cost of 18 tables at 15s.  $8\frac{1}{2}$ d. each.
- (9) What do I pay for 24 pairs of boots at 9s.  $11\frac{1}{2}$ d. a pair?
- (10) Find the cost of 3 dozen vests at 4s.  $9\frac{3}{4}$ d. each.
- (11) What will 27 umbrellas cost at 11s.  $8\frac{1}{2}$ d. each?
- (12) A grocer bought 48 stones of sugar at 3s.  $5\frac{1}{2}$ d. per stone. How much did the sugar cost?
- (13) What will 72 lb. of tea cost at 2s. 9d. per lb.?
- (14) Salmon costs 1s.  $11\frac{3}{4}$ d. per pound. How much does a salmon cost which weighs 27 pounds?
- (15) In a shop there are 27 boys' overcoats at 13s. 8d. each. How much are they all worth?

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- (16) A woman had 3 five-pound notes. She bought a dress for £4, 18s. 7d., boots for 19s.  $8\frac{1}{2}$ d., and a fur for £6, 15s. 6d. How much had she then?
- (17) A man bought 168 sacks of flour, with 18 stones in each sack. He sold the flour in 7-pound bags. How many bags did he require? (14 lb. = 1 stone.)
- (18) 12 boys and 10 girls made 408 attendances each during the year. How many did they make altogether?
- (19) Make up a sum about 16 boys, and work it.

#### Exercise 4.—Division by Factors.

- (1) Write in words the value of each figure in the following numbers: 4685, 3062, 5629, 4387. Also write in words the value of each *pair* of figures.
- (2) A farmer had 8232 sheep. He shared them equally among 21 farms. How many were sent to each?
- (3) 7294 bricks are put into 14 carts in equal numbers. How many bricks are put into each cart?
- (4) A ferry-boat carries 24 persons. How many times does the boat come to carry away 3744 persons?
- (5) (a)  $(6696 \div 18) - (4275 \div 15)$ ; (b)  $(89 \times 16) + (8160 \div 32)$ .
- (6) 16 ounces make a pound. How many pounds are there in 6944 ounces?
- (7) A large hall contains 2304 square yards. If it is 64 yards long, how wide is it?
- (8) 9126 pounds of wool are packed in equal quantities into 54 bags. How many pounds are put into each bag?
- (9) (a)  $\frac{1715}{49}$ ; (b)  $\frac{9856}{56} + \frac{6880}{80}$ .
- (10) There are 36 beads on a string. How many such strings can be made from 7037 beads? How many beads are left?
- (11) Four dozen screws are packed into a case. How many cases are required for 8880 such screws?
- (12) A grocer bought 81 boxes of tea. If there are 7452 lb. in all the boxes, how many pounds are there in each box?

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- (13) A gross is 144. How many pencils short of 9650 are there in 36 boxes, each containing a gross?
- (14) A field is 264 yards long and 198 yards wide. If a horse gallops 9 times round the field, how far does it run?
- (15) A shopman had £2 worth of change in his drawer. He received £4, 18s.  $9\frac{1}{2}$ d., and paid a bill for £5, 19s.  $10\frac{1}{2}$ d. How much had he then?
- (16) Make up and work a sum about 25 workmen.

Exercise 5.—Division of Money by Factors.

- (1) A farmer sold 28 lambs for £10, 17s. 0d. How much was that each?
- (2) If 45 turkeys cost £18, 15s. 0d., what was the price of each?
- (3) Find the cost of a yard of carpet, if 44 yards cost £10, 16s. 4d.
- (4) 32 boxes of apples are sold for £11, 14s. 8d. What is the price per box?
- (5) What was the cost of a chair, if 2 dozen were bought for 3 times £4, 2s. 0d.?
- (6) At Christmas 16 geese were sold for £10, 4s. 8d. What was the average price of the geese?
- (7) Find the price of a yard of silk, if 25 yards cost £8, 5s.  $7\frac{1}{2}$ d.
- (8) If a farmer sold 18 pigs for £17, 8s. 9d., what was the price of one?
- (9) A fishmonger sold 30 barrels of fish for £17, 3s. 9d. What was the price of a barrel?
- (10) 3 dozen pairs of boots were bought for £18, 7s. 6d. How much would 2 pairs cost?
- (11) 35 cheeses of equal weight cost as much as a quantity of butter worth £11, 3s.  $1\frac{1}{2}$ d. What did each cheese cost?
- (12) A hatter bought 40 hats for £11, 5s. 0d., and sold them, gaining £2, 10s. 0d. What did he sell each hat for?
- (13)  $3\frac{1}{2}$  dozen boxes of figs cost £17, 18s. 9d. What was the price of one box?
- (14) 4 dozen yards of silk were sold for £16, 2s. 0d. What was the price per yard?

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- (15) A merchant bought 6 boxes of eggs, each containing 840. If 96 eggs were bad, and he sold the rest at 16 for 1s., how many shillings did he receive?
- (16) A man gave 4 five-pound notes in payment for 36 lambs at 10s. 8d. each. What change did he receive?
- (17) Make up a sum about sharing £15, 0s. 0d., and work it.

### Exercise 6.—Extension of Decimal Notation.

- (1) Draw an oblong **4·8** inches long and **3·4** inches wide.  
How far is it all round?
- (2) Work the following exercises:
  - (a)  $\text{£3}\cdot\text{5} + \text{£10}\cdot\text{6} + \text{£9}\cdot\text{8} + \text{£6}\cdot\text{5}$ .
  - (b)  $5\cdot\text{6}$  in. +  $7\cdot\text{9}$  in. +  $8\cdot\text{6}$  in. +  $7\cdot\text{6}$  in.
  - (c)  $4\cdot\text{7}$  in. +  $5\cdot\text{6}$  in. +  $2\cdot\text{7}$  in. +  $4\cdot\text{9}$  in.
  - (d)  $8\cdot\text{5}$  in. +  $7\cdot\text{8}$  in. -  $4\cdot\text{3}$  in. +  $2\cdot\text{7}$  in.
  - (e)  $(3\cdot\text{4}$  in.  $\times 8) + (4\cdot\text{6}$  in.  $\times 7)$ .
  - (f)  $(5\cdot\text{7}$  in.  $\times 7) - (2\cdot\text{8}$  in.  $\times 9)$ .
- (3) Measure a reading-book in inches and tenths of an inch, and write down the distance all round it.
- (4) A cart holds **1·7** tons of coal. How many tons are there in **9** such loads?
- (5) A sheet of paper is **10·6** inches long and **8·8** inches wide. What is the distance round **6** such sheets?
- (6) Draw a figure half the area of the sheet of paper in question 5, and find the distance round it.
- (7) Draw a line **3·6** inches long. How long is a piece of string **9** times this length?
- (8) There are **15** doorways in a row. Each is **4·8** feet wide. What is the total width of the doorways?
- (9) A brick is **9** inches long and **4·5** inches broad. What space will **56** bricks cover?
- (10) A man had  $\text{£3}\cdot\text{5}$  in each of **5** bags, and  $\text{£4}\cdot\text{6}$  in each of **7** boxes. How much more money had he in the boxes than in the bags?
- (11) A man requires glass for **8** pictures, each **12** inches long and **10·5** inches wide. How many square inches of glass are required for all the pictures?
- (12) Three pieces of wire measure **44** yd. One of them measures **13·6** yd., and another measures **15·7** yd. How long is the third piece?
- (13) A lady bought **5** pieces of calico, each measuring **16·4** yd., and **7** pieces of linen, each measuring **4·3** yd. How many yards of material did she buy?
- (14) Make up a sum about measuring in tenths; work it.
- (15) Find the tenth part of  $(\text{£8}, 17\text{s. } 6\text{d.} + \text{£10}, 10\text{s. } 5\text{d.})$ .

**Exercise 7.—Simple Multiplication—Multipliers over 12.**

- (1) A greengrocer bought 19 boxes of oranges, with 420 in a box. How many oranges did he buy?
- (2) A sack of flour weighs 148 lb. What is the weight of 26 such sacks?
- (3) There are 136 Jamaica oranges in one case. How many oranges are there in 37 such cases?
- (4) A bale of wool weighs 346 lb. What is the weight of 26 bales?
- (5) On a bill there are 57 words. How many words are there on 67 such bills?
- (6) 56 men earn 38 shillings each per week. How many shillings do they earn in all?
- (7) A box of tea weighs 56 lb. What is the weight of 84 such boxes?
- (8) A girl has 139 beads on a string. How many beads are there on 58 such strings?
- (9) A class-room is 25 feet long and 24 feet wide. What is the area of 6 class-rooms the same size?
- (10) A butcher supplies 48 lb. of beef per week to one of his customers. How many lb. does he supply in a year? (52 weeks make a year.)
- (11) In a case are packed 6 dozen plates. How many plates are there in 3 dozen such cases?
- (12) A farmer had 56 lb. of hay. He bought 37 trusses, each weighing 46 lb. How many lb. had he then?

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- (13) 12 rolls of carpets were each 168 feet long. These were cut into lengths of 24 feet. How many lengths were there?
- (14) A teacher had 15 bags of sweets to give to her boys. There were 125 in each bag. How many boys were there, if each got 25 sweets?
- (15) A sofa costs twice as much as a chair. If a chair costs 15s. 8d., find the cost of 2 sofas and 2 chairs.
- (16) A man buys watches at £1, 14s. 6d. each. How much does he receive for 9 watches, if he loses 1s.  $9\frac{1}{2}$ d. on each when he sells them?

### Exercise 8.—Measuring, Folding, and Cutting Sweet-Bag.

- (1) What is the distance round the drawing of your bag ?  
If there are 45 boys in the class, what is the total distance round all the drawings if all are alike ?
- (2) If the piece of paper required for the bag is 12 inches long and 8 inches wide, what is the area of all the paper required for 45 boys ?
- (3) Measure all the lines on your drawing in inches and tenths of an inch. Write these down in your exercise-book, and find the total length.
- (4) Measure all round the bag when it is folded, and find the total length of all the sides.
- (5) If the piece of paper required is 12 inches long and 8 inches wide, and the drawing is 8 inches long and 7 inches wide, what area of paper is cut off in making 36 bags ?
- (6) When the bag is folded, measure all the lines on the back, and find the total length.
- (7) If the bag is 7 inches long and 6 inches wide, what is the area of 96 such bags ?
- (8) Measure from one corner to the opposite corner of your bag, and write down the length. What is the total length of 56 such lines ?
- (9) If the bags cost 6d. a hundred, what will 3000 cost ?

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- (10) A box contains 72 lb. of tea. This is put into bags, each holding 4 ounces. How many bags are required ?
- (11) A causeway is 9 feet wide and 346 feet long. How many square feet are there in it ?
- (12) A piece of linen is 3 feet wide and 156 feet long. It is cut up into pocket-handkerchiefs, each a foot square. How many of these are there ?
- (13) A man gave three £5 notes to pay for 18 chairs at 13s.  $7\frac{1}{2}$ d. each. How much change should he get ?
- (14) At a treat there were 9669 children. They were arranged 16 in a row. How many rows were there, and how many children were there over ?
- (15) Make up a sum about your paper bag, and work it.

### Exercise 9.—Long Division.

- (1) A cloth merchant has **9672** yards of cloth. He makes it into **31** equal parcels. How many yards are there in each parcel?
- (2) A fish merchant packs **42** herrings in a box. How many boxes are required for **3699** herrings?
- (3) A wagon holds **43** baskets of plums. How many times can the wagon be filled from **8776** baskets?
- (4) **6916** newspapers are packed in bundles of **13**. How many bundles are there?
- (5) A merchant had **6837** pounds of peas. He put the peas into **53** bags, putting the same quantity into each bag. How many pounds were put into each?
- (6) Share **8742** sheep equally among **62** farms.
- (7) At the rate of **42** pints an hour, how long will it take to empty a tank containing **7266** pints?
- (8) If **13** schools the same size contain **5668** children, how many children are there in **8** of these schools?
- (9) How many lengths of **42** yards each can be cut from **12** rolls of wire, each measuring **184** yards?
- (10) **9850** oranges are shared equally among **14** boys' schools and **11** girls' schools. How many oranges are sent to each school?
- (11) I give a number of boys **64** nuts each. How many boys are there, if I give away **3** bags of nuts, one containing **341**, another **279**, and another **852**?
- (12) A gardener has **13750** bulbs. He sells half of these, and then plants the rest in equal numbers in **55** beds. How many does he plant in each bed?
- (13) A train runs **53** miles an hour. In how many hours will it run a distance of **4664** miles and back?

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- (14) How many yards of string can be cut from **5** reels, each holding **1908** inches? ( $1\text{ yard} = 36\text{ inches.}$ )
- (15) A ship set out on a voyage of **6398** miles. How far will it be from the end of its voyage after sailing **6** days at the rate of **527** miles a day?
- (16) What would **36** lb. of tea cost at **2s. 4d.** per lb.?

### Exercise 10.—Metric System.

- (1) Draw a line 4 inches long. Measure the line with the centimetre side of your ruler, and write down how long it is.
- (2) Which is longer, a line measuring 6·4 inches or a line measuring 17 cm.? Say how much longer.
- (3) Draw lines the following lengths: 6·4 cm., 9·8 cm., 12·6 cm., and 14·5 cm.
- (4) Draw a line 9·3 cm., and another 16·5 cm. Draw another line to show the difference in their lengths.
- (5) A boy has 9 strips of paper, each 7·6 cm. long. How far will all the strips reach?
- (6) Draw a line 16·8 cm. long. Show how long a quarter of the line is.
- (7) A strip of paper 14·4 cm. long is folded into six equal parts. How long is one part?
- (8) In three days a river rose 4·6 cm., 5·7 cm., and 6·8 cm. What distance did the river rise altogether?
- (9) A reading-book is 18·6 cm. long. How far do 6 such books reach, placed end to end?
- (10) A pen measures 14·6 cm. long. How long are 8 pens?
- (11) A piece of paper is 26 cm. long, and 22 cm. wide. How many square cm. do 6 such pieces cover?
- (12) Work the following exercises:
  - (a)  $3\cdot6 \text{ cm.} + 4\cdot9 \text{ cm.} + 8\cdot7 \text{ cm.} - 5\cdot4 \text{ cm.}$ ;
  - (b)  $4\cdot3 \text{ cm.} - 1\cdot4 \text{ cm.} + 3\cdot5 \text{ cm.} - 2\cdot2 \text{ cm.}$ ;
  - (c)  $(6\cdot2 \text{ cm.} \times 5) + (5\cdot4 \text{ cm.} \times 6)$ ;
  - (d)  $(4\cdot5 \text{ cm.} \times 9) - (2\cdot8 \text{ cm.} \times 12)$ ;
  - (e)  $(16\cdot8 \text{ cm.} \div 6) + (15\cdot5 \text{ cm.} \div 5)$ ;
  - (f)  $(20\cdot7 \text{ cm.} \div 9) - (16\cdot1 \text{ cm.} \div 7)$ .
- (13) Draw an oblong 15 cm. long and 12 cm. wide. If there are 45 boys in the class, and each boy draws this oblong, what is the area of all the oblongs?
- (14) An oblong contains 644 square cm. It is 28 cm. long. How wide is it?

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- (15) 3 trucks of coal cost £21, 4s. 0d. If each truck contains 8 tons, what is the cost per ton?

### Exercise 11.—Symbolic Arithmetic.

Work examples thus :

$$\begin{aligned}\text{Length of 1 side} &= x \text{ inches.} \\ \text{“} \quad \text{4 sides} &= x \text{ inches} \times 4 \\ &= 4x \text{ inches.}\end{aligned}$$

- (1) Each side of a square is  $x$  inches long. How far is it round the square? round 2 such squares?
- (2) How many pennies are there in  $x$  shillings?
- (3) In a bag there are  $b$  pounds of sugar. How many pounds will 4 such bags hold?
- (4) A lead-pencil is  $b$  inches long. Find the total length of 5 such pencils.
- (5) Find what  $x$  stands for in the following :  
 (a)  $4x = 24$ ; (b)  $6x = 30$ ; (c)  $3x = 27$ ;  
 (d)  $7x = 49$ ; (e)  $6x = 54$ ; (f)  $8x = 96$ .
- (6) Tom is  $x$  years old. How old will he be in 3 years?
- (7) How many halfpence are there in  $x$  pence?
- (8) How many pence are there in  $x$  sixpences? How many halfpence? How many farthings?
- (9) If  $l$  stands for the number of feet in the length of a square or oblong,  $b$  the number of feet in the breadth, and  $A$  the number of square feet in the area, find  $l$ ,  $b$ , or  $A$ , as the case may be, in the following exercises on area :  
 (a)  $l \times 4 = 24$ ; (b)  $b \times 5 = 40$ ; (c)  $4l = 16$ ;  
 (d)  $6 \times b = 30$ ; (e)  $5 \times l = 35$ ; (f)  $6 \times 5 = A$ .
- (10) How many inches are there in  $x$  feet?
- (11) I had  $x$  marbles. I won 9. How many had I then?
- (12) A boy had  $x$  pens. He lost 7. How many had he left?
- (13) An oblong is  $x$  inches long and  $y$  inches wide. How far is it round?
- (14) 2 lines the same length are together  $4x$  inches long. How long is one line?
- (15) One boy has  $x$  marbles, and another  $y$  marbles. How many have they together?
- (16) A boy had  $x$  sweets. He gave away  $y$  sweets. How many had he for himself?
- (17) Make up a sum about  $x$  tickets, and work it.

## Exercise 12.—Measuring Angles.

*Learn.*—(1) In a right angle there are **90** degrees.  
(2) An acute angle is less than a right angle.  
(3) An obtuse angle is greater than a right angle.

- (1) Cut out of coloured paper a square, each side **5.5** cm. long. How many degrees are there in each angle?
- (2) From a piece of coloured paper cut out another square the same size. Cut this into two equal triangles. Write down the size and name of all the angles.
- (3) Draw six angles of different sizes. Measure these with the protractor. Write their names and sizes.
- (4) With the set square make angles of **90°**, **60°**, and **30°**. Write down the names of these angles.
- (5) Draw a horizontal line **4** inches long, find the middle, and at this point make a number of angles. With the protractor find the number of degrees in each angle, and write down the name of each.
- (6) With compasses draw a circle. Through the middle draw vertical and horizontal lines, each reaching the circle at two points. What is the size of each angle? How many degrees are there in a circle?
- (7) With the protractor make the following angles: **100°**, **120°**, **140°**, **160°**. Write down the name of each.
- (8) With the set square make the following angles: **90°** (**60°+30°**), **120°** (**90°+30°**) or (**60°+60°**), **150°** (**90°+60°**), **135°** (**90°+45°**).
- (9) What kinds of angles are made by the hands of a clock at the following times: **3 o'clock**? **20 minutes past 3**? **25 minutes to 4**? **4 o'clock**? **5 o'clock**?
- (10) Draw a square **10** cm. each side. Draw the diagonals, and cut out each triangle. Name and measure all the angles in the figures.
- (11) Draw an oblong **8.5** cm. long and **5.6** cm. wide. Draw the diagonals, and cut out each triangle. Name and measure all the angles.
- (12) Make up and answer a question about an obtuse angle.

### Exercise 13.—Money Exercises—Shopping.

- (1) A furniture dealer bought a table and 24 chairs for £11, 5s. 0d. The table cost £2, 17s. 6d. What was the price of each chair?
- (2) A lb. of tea costs 2s.  $8\frac{1}{2}$ d., and a lb. of coffee 1s.  $10\frac{1}{2}$ d. What is the cost of 33 lb. of each?
- (3) A jeweller bought 3 watches for £16, 18s. 9d. He sold them, gaining 17s. 9d. on one, 15s. 8d. on another, and 14s. 6d. on another. How much did he sell them all for?
- (4) A woman had a five-pound note. She bought groceries for 18s.  $9\frac{1}{2}$ d., spent £2, 19s.  $11\frac{1}{2}$ d. at the draper's, and 13s.  $7\frac{1}{2}$ d. at the butcher's. How much had she then?
- (5) A farmer sold a cow for 18 guineas, and with the money bought 36 lambs. Find the cost of a lamb.
- (6) A wagon is loaded with 45 bags of potatoes. If each bag cost 8s. 9d., how much did the load cost?
- (7) A draper sold 4 rolls of flannel, each 18 yards long. The flannel was worth 1s.  $9\frac{1}{4}$ d. per yard. How much were the 4 rolls worth?
- (8) A man bought 3 trucks of coal, each holding 8 tons, at 16s. 8d. per ton. The railway company charged 2s. 5d. per ton for carriage. Find the total cost.
- (9) A farmer sells butter at 1s. 5d. per roll, and cheese at 9d. per lb. What is the total cost of 44 rolls of butter and 56 lb. of cheese?
- (10) A bootmaker buys a case of boots containing 36 pairs for £17, 8s. 0d. What is the price per pair?
- (11) Tom was taken to the tailor's shop. His father bought him a suit for £2, 12s. 6d., an overcoat for £1, 11s. 4d., a hat for 5s. 6d., ties for 1s.  $9\frac{1}{2}$ d., and collars for 3s.  $8\frac{1}{2}$ d. How much was left out of a five-pound note?
- (12) What does this bill come to: 6 lb. of beef at  $10\frac{1}{2}$ d. per lb.; 4 lb. of lamb at 1s. 2d. per lb.; 8 lb. of suet at  $7\frac{1}{2}$ d. per lb.; 6 lb. of mutton at 11d. per lb.?
- (13) Make up a sum about going to the grocer's shop with 10s. 0d., and work it.

### Exercise 14.—Money Exercises—Shopping.

- (1) What did I pay the grocer for the following: 4 stones of flour at 1s. 8d. per stone; 5 lb. of butter at 1s. 5d. per lb.; 6 lb. of bacon at  $11\frac{1}{2}$ d. per lb.; 10 lb. of sugar at  $2\frac{1}{2}$ d. per lb.;  $1\frac{1}{2}$  lb. of tea at 8d. for 4 oz.?
- (2) What change is there out of £2, 0s. 0d. after buying 1 dozen collars at  $4\frac{1}{2}$ d. each, 2 shirts at 2s.  $11\frac{1}{2}$ d. each, 6 ties at 1s. 3d. each, 2 pairs of gloves at 3s.  $8\frac{1}{2}$ d. per pair, 4 pairs of cuff's at  $10\frac{1}{2}$ d. per pair?
- (3) A woman bought these articles for a bazaar: 3 doz. toys at  $4\frac{1}{2}$ d. each; 12 doz. oranges at 4d. per doz.; 10 lb. of sweets at 9d. per lb.; 4 boxes of chocolates at 1s. 2d. per box. What was the total cost?
- (4) What is the total cost of the following articles: 12 boxes of envelopes at  $4\frac{1}{2}$ d. per box; 12 packets of note-paper at  $8\frac{1}{2}$ d. per packet; 2 doz. exercise-books at 9d. per doz.; 12 boxes of pens at  $5\frac{1}{2}$ d. per box; 12 doz. penholders at  $3\frac{1}{2}$ d. per doz.?
- (5) Find the total cost of 12 fruit-trees at 1s. 9d. each, 90 cabbage plants at 4d. per doz., 3 bundles of canes at 3s. 9d. per bundle,  $1\frac{1}{2}$  dozen tomato plants at 3d. each, 24 packets of seeds at  $5\frac{1}{2}$ d. per packet.
- (6) A coal dealer bought 3 trucks of coal, each holding 14 tons, at 18s. 6d. per ton, and sold the coal at £1, 1s. 8d. per ton. How much did he gain?
- (7) A man bought 14 pigs at £2, 19s. 6d. each. If he sold them for £50, 17s. 4d., how much did he gain on each pig?
- (8) How much is left out of £20 after buying a suit for £2, 18s. 6d., boots for 12s. 9d., an overcoat for 3 guineas, and a hat for 6s. 9d.?
- (9) 7s. 6d. is paid for filling each of three trucks with sea-sand. If each truck holds 9 tons, and the railway company charges 5s. 9d. per ton for carriage, what is the total cost of the sand?
- (10) A watch is bought for £2, 13s. 6d., and sold for £3, 10s. What amount is gained on 17 watches?
- (11) A man bought six watch-chains for £15, 10s. How much must he sell each for, to gain £4, 1s. 6d. in all?

### Exercise 15.—Miscellaneous Exercises.

- (1) Six trains take **6000** persons to a football match. **894** persons go by the first train, **987** by the second, **1056** by the third, **978** by the fourth, and **885** by the fifth. How many go by the sixth?
- (2) A man spent the same sum of money each day for **24** days. The total amount was £**18**, **12s. 0d.** How much did he spend each day?
- (3) What is the value of  $x$  in the following:
  - (a)  $(\text{£}13, 13\text{s. }4\text{d.} \div 16) + (\text{£}15, 6\text{s. }0\text{d.} \div 18) = x$ ;
  - (b)  $\frac{\text{£}18, 14\text{s. }6\text{d.}}{7} - \frac{\text{£}12, 15\text{s. }9\text{d.}}{9} = x?$
- (4) A merchant had **8000** oranges. **304** were bad. He put the remainder in equal numbers into **46** baskets. How many were put into each basket?
- (5) **17** bobbins of weft weigh one pound. What is the weight of **4886** bobbins?
- (6) A man put a certain number of tickets into boxes. There were **57** boxes, and **168** tickets were put into each box. What was the total number of tickets?
- (7) A game-dealer gave **2** ten-pound notes in payment for  $3\frac{1}{2}$  dozen turkeys at **7s.  $9\frac{1}{2}$ d.** each. How much change did he receive?
- (8) One street is **236** feet long and **15** feet wide, and another is **186** feet long and **18** feet wide. How many more square feet are there in one street than in the other? (9)  $2104 \div 45$ .
- (10) A man has **9650** old postage-stamps. He sells them at **50** for a shilling. How much does he sell them for?
- (11) The railway fare from Bradford to London is **15s.  $10\frac{1}{2}$ d.** A man goes there and back **14** times a year. How much does he spend on these railway fares?
- (12) A woman earns **5s. 10d.** per day, and her daughter half as much. How much do they earn together in **3** weeks if they work **6** days a week?
- (13) On a poultry-farm there are **36** pens containing hens. If **6** eggs are got from each pen every day, how many eggs are got from all the pens in **7** days?

### Exercise 16.—Miscellaneous Exercises.

- (1) A new lead-pencil measures 17·4 cm. How long do 12 such pencils measure?
- (2) There are 12 pieces of paper in a packet. Each piece is 25 cm. long and 15 cm. broad. What space will all the pieces cover?
- (3) A boy had a stick. He cut off one-eighth of it, then a half of it, and then a quarter. How much of the stick was left?
- (4) A printer has 6250 post-cards. He puts them into packets of 25, and sells them at a penny per packet. How many pennies does he receive?
- (5) Three brothers sell 5 pigs at £3, 14s. 6d. each, and 14 hens at 4s. 9d. each. If they share the money equally, what does each receive?
- (6) A lamplighter has 76 lamps in his district. If he uses a match for each lamp, how many matches does he use in January and December?
- (7) A bag holds 8 ounces of sweets. There are 16 ounces in a pound. How many bags will be required for 48 pounds of sweets?
- (8) A teacher has 58 examination papers in a pile. If each is 11 inches long and 9 inches wide, what is the total area of the papers?
- (9) A courtyard 11 yd. long and 5 yd. wide is paved. If the paving cost 15s. 8d. per square yard, how much did the whole yard cost?
- (10) A brick wall is 3 yd. high and 68 yd. long. If 48 bricks were required to build a square yard, how many bricks were needed for the wall?
- (11) A man sells 53 oranges for 1s. 0d. How many shillings does he receive for 12 boxes, each containing 477 oranges?
- (12) I bought 68 tubs of apples, each holding 14 stones, and sold 875 stones. How many stones had I left?
- (13) At a football match there were 8960 persons present. Of these 649 paid 5s. 0d. each, 1687 paid 2s. 6d. each, 5487 paid 1s. 0d. each, and the rest paid 6d. each. How many persons paid 6d.?

## Exercise 17.—Term Tests.

### A.

- (1) (a) Draw a line **4·6** in. long, and another **5·3** in. long.  
Show how much longer one is than the other.  
(b) A boy said, 'Three square inches are the same as three inches square.' Draw a figure showing how much he was wrong.  
(c) Draw an oblong to show **24** sq. cm. Colour  $\frac{1}{8}$  of this oblong blue.
- (2) How many pieces of string each **24** in. long can be cut from a ball of string measuring **3466** inches?
- (3) A man sold three pigs, weighing **8** stones, **12** stones, and **14** stones, at the rate of **11s. 8d.** per stone.  
How much did he receive for them?
- (4) A dealer had **£1, 19s. 6d.** in his pocket. He went to market and sold **25** pots of butter at **13s. 9d.** each.  
How much money had he then?
- (5) In a street there are **9** houses with backyards. The yards are **24** feet long and **19** feet wide. How many square feet are there in all the backyards?
- (6) Find the cost of **16** jackets at **16s.  $11\frac{1}{2}$ d.** each.

### B.

- (1) (a) Draw a square to show **36** sq. cm.  
(b) Draw an oblong **5** inches by **4** inches, and colour  $\frac{1}{4}$  of it blue and  $\frac{1}{8}$  red.  
(c) Draw a line **2·7** inches long, and then make it **3·6** inches longer.
- (2) There are six blackboards in the class-rooms, and each one measures **12** ft. by **5** ft. How much did the painting of them cost at **6d.** per square foot?
- (3) A farmer bought **18** sheep at **16s. 8d.** each, and had **£2, 19s. 6d.** left. How much money had he at first?
- (4) A man bought **60** stones of apples. If he sold them for **£8, 5s. 0d.**, how much was that per stone?
- (5) How many inches of tape will it take to go round a class-room, if it is **9** yards long and **8** yards wide?
- (6) What number is **46** times as large as **138**?

## C.

- (1) (a) Divide a line 9 inches long into four equal parts.  
 (b) Draw a figure to show 16 sq. inches, and colour  $\frac{1}{8}$  of it blue.  
 (c) Make an oblong 6.5 cm. long and 5 cm. broad.  
 Show how many square cm. there are in it.
- (2) A joiner had 16 boards, each 9.5 feet long. Find the total length.
- (3) 8 boxes contain 790 eggs each. If the eggs are sold at 16 for a shilling, how many shillings are got for them?
- (4) At a sale 66 yd. of cloth were sold for £12, 2s. 0d. It cost 4s. 9d. per yd. How much money was lost?
- (5) From a colliery each of five railway engines takes away 28 trucks of coal. If each truck contains 9 tons, how many tons are taken away in all?
- (6) How much is £7, 8s. 6 $\frac{1}{2}$ d. less than twenty pounds?

## D.

- (1) (a) Show by drawing lines the difference between 6.3 cm. and 7.8 cm.  
 (b) Draw the letter E in an oblong 4.7 inches long and 3.2 inches wide.  
 (c) Make an oblong 9 cm. long and 6 cm. broad.  
 Colour  $\frac{1}{4}$  of it blue.
- (2) A court is 16 yards long and 14 yards wide. How many square feet are there in it? (*There are 9 square feet in 1 square yard.*)
- (3) On a poultry-farm there are 6000 chickens. 1344 of these are sold, and the rest put into pens, 48 in each pen. How many pens are required?
- (4) The rent of a house is 6s. 9d. per week. What is the weekly rent of a row of 18 such houses?
- (5) Find the change out of £5 after buying 4 doz. baskets of tomatoes at 9 $\frac{1}{2}$ d. a basket, 8 doz. oranges at 1 $\frac{1}{2}$ d. each, 7 stones of potatoes at 1s. 4d. a stone, 2 bunches of bananas at 12s. 9d. per bunch.
- (6) Find the ninth part of £11, 13s. 3 $\frac{1}{2}$ d.

**Exercise 18.—Notation not exceeding 99999, with Revision.**

- (1) At a football match there were **39184** persons. **2694** paid 5s. 0d. each, **4648** paid 2s. 6d. each, **12467** paid 1s. 0d. each, and the rest paid 6d. each. How many paid 6d.?
- (2) In **84** hours a brickmaker sent away **68292** bricks. How many were sent away per hour?
- (3) A railway company uses **1687** tons of coal each week. How many tons are used in a year? (**52 weeks.**)
- (4) **18** boys and **16** girls make **419** attendances each in a year. Find the total number of attendances.
- (5) In **1901** the population of a town was **47628**. In **1911** it was **49624**. What was the increase in the ten years?
- (6) In a school there are **178** iron supports for desks. Each one weighs **29** lb. What is the total weight of the supports?
- (7) There are **144** sheets of paper in a packet. Each sheet is **14** inches long and **9** inches broad. What is the total area of the sheets?
- (8) Apples are packed in boxes, each holding **56** lb. How many boxes are required for **26946** lb. of apples?
- (9) A draper bought **36** boys' coats at 9s. 10d. each. How much less than £**20**, 0s. 0d. did he spend?
- (10) A farmer gave £**18**, 0s. 0d. in payment for **8** sheep at £**1**, 13s. 8d. each, and **4** pigs at 19s. 10d. each. How much change did he receive?
- (11) **24** chairs cost £**16**, 11s. What did each chair cost?
- (12) A piece of cloth is **42** yards long, and is sold for £**18**, 17s.  $1\frac{1}{2}$ d. What is the price per yard?
- (13) A roll of carpet **48** yards long was bought for £**16**, 2s. 0d. The man gained £**3**, 2s. 0d. when he sold it. What price did he sell it at per yard?
- (14) What does the following bill come to: **14** lb. of ham at  $10\frac{1}{2}$ d. per lb.; **16** lb. of bacon at  $9\frac{1}{2}$ d. per lb.; **24** lb. of butter at 1s. 5d. per lb.?
- (15) Divide the sum of **368**, **5317**, and **89** by forty-five.
- (16) Make up a sum about buying boots, and work it.

Exercise 19.—Money not exceeding £50, and Multiplication  
by any Number.

- (1) In four days a grocer took the following amounts: £3, 15s.  $9\frac{1}{2}$ d., £8, 17s.  $4\frac{1}{2}$ d., £14, 12s.  $8\frac{1}{2}$ d., and £15, 16s.  $3\frac{1}{2}$ d. How much did he take in all?
- (2) A man spent £12, 9s.  $7\frac{1}{2}$ d., and then was able to buy a coat for £2, 12s. 8d., a pair of boots for 15s. 8d., and a hat for 6s. 9d. He had 19s. 6d. left. How much had he at first?
- (3) A piano was marked £20, 10s. 0d. If it was bought for £18, 12s. 6d., how much was taken off the price?
- (4) If the railway fare from Glasgow to Keighley is 15s. 9d., what are the total fares for 54 men?
- (5) If a table costs 19s. 8d., what will 19 such tables cost?
- (6) A girl earns 13s.  $8\frac{1}{2}$ d. per week in making shirts. How much does she earn in a year? (52 weeks.)
- (7) Flour is 12s.  $5\frac{1}{2}$ d. per half-sack. What is the cost of 23 sacks?
- (8) If a box of oranges costs 15s.  $7\frac{1}{2}$ d., how much will 26 boxes cost?
- (9) Paving is 16s. 9d. per square yard. What does it cost to pave a court 8 yards wide and 6 yards long?
- (10) How much do 37 tons of coal cost at 18s. 7d. per ton?
- (11) A farmer sold 46 lambs at 14s. 8d. each. How much did he sell them for?
- (12) A pair of boots cost 16s. 7d. What is the cost of 29 similar pairs?
- (13) A greengrocer bought 57 sacks of potatoes at 13s.  $4\frac{1}{2}$ d. per sack. What was the total cost?
- (14) Silk is 15s.  $11\frac{1}{2}$ d. per yard. What do 37 yards cost? Work this in two ways.
- (15) A man paid £50, 5s. 9d. for 54 sacks of wheat. What was the price per sack?
- (16) What is the cost of 3 pieces of cloth, each 19 yards long, at 7s.  $9\frac{1}{2}$ d. per yard?
- (17) Make up a sum about buying 26 barrels of apples, and work it.
- (18) £2, 11s.  $4\frac{3}{4}$ d.  $\times$  19.

Exercise 20.—Metric System.—Decimetres, Centimetres, Millimetres.

- (1) Draw a line 2·5 decimetres long. Write down the total length of 6 such lines.
- (2) Draw a line 6·4 inches long, and write down how long it is in decims.
- (3) A piece of paper is 6 inches long. How long is it in decims.?
- (4) Draw a line 5·8 inches long. Write down how long it is in millimetres, then in centimetres, and then in decimetres.
- (5) Draw a line the width of your exercise-book. Write down the length in decims., and then in centims.
- (6) Three pieces of string measure 4·3 decims., 6·5 decims., and 8·7 decims. What is the total length?
- (7) Draw a line 1·5 decims. long, and show how long a fifth part of it is.
- (8) Draw a figure to show one square decimetre.
- (9) There are 240 sheets of paper in a packet. Each sheet is 12 decims. long and 8 decims. wide. What is the total area of the sheets?
- (10) Draw a figure 1·4 decims. long and 9 centims. wide. Colour blue the space representing 1 square decim.
- (11) Draw a square decim., and in each corner colour blue one square centimetre.

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- (12) Find the cost of 9648 oranges at 48 for a shilling.
- (13) A farmer set out with £30, 0s. 0d. He bought corn for £9, 8s.  $7\frac{1}{2}$ d., turnips for £3, 12s. 7d., and a cart for nine guineas. How much money had he then?
- (14) A mason needed 49000 bricks. He received 964 a day for 46 days. How many more did he need?
- (15) £38, 8s. 4d. is collected. If this is divided equally among 20 families, how much does each family get?
- (16) A girl earned 18s. 6d. a week, and spent 15s.  $7\frac{1}{2}$ d. What did she save in a year? (52 weeks.)
- (17) Make up a sum about decims. and centims., and work it.

### Exercise 21.—Miscellaneous Exercises.

- (1) A man bought 98 bales of wool, each weighing 478 pounds. How many pounds did he buy?
- (2) Each week a boot factory sends out 146 cases of boots, with 48 pairs in a case. How many pairs of boots are sent out in 13 weeks?
- (3) It took 6 men 5 weeks to do a piece of work. If each was paid £1, 13s. 4d. per week, find the total wages bill.
- (4) 7 lb. of flour cost 1s. 2d. If a grocer has 28 bags of flour, each containing 14 lb., what are they worth?
- (5) There are 29 books in a set. If each book costs 7s. 9d., how much will two sets cost?
- (6) In a shop there are 26 chairs, marked £1, 14s. 7d. each. What is the price of all the chairs?
- (7) On an average a milkman makes a profit of £1, 12s. 8d. per week of 7 days. How much profit does he make in 34 days?
- (8) A man had £48, 9s. 8d. in the bank. He drew out £2, 3s. 8d. per week for 13 weeks. How much was there in the bank then?
- (9) Turnips are sold at £3, 17s. 6d. per ton. If 2 tons are used in a month, what is the value of the turnips used in 6 months?
- (10) A desk is 26 decims. long and 4 decims. wide. How many square decims. are there in 46 such desks?
- (11) Draw an oblong 1·4 decims. long and one decim. wide. Colour blue the number of sq. decims. in a quarter of this figure.
- (12) Find  $x$  in the following sums:
 
$$1\frac{1}{2} \text{ in.} + 2\frac{3}{4} \text{ in.} + 3\frac{3}{8} \text{ in.} = x$$

$$3\cdot6 \text{ cm.} + 5\cdot9 \text{ cm.} + 8\cdot7 \text{ cm.} - 6\cdot5 \text{ cm.} = x$$

$$(6\cdot5 \text{ cm.} \times 9) - (8\cdot4 \text{ cm.} \times 6) = x$$
- (13) A man spent £9, 18s. 6d. on three chairs. One cost £2, 14s. 6d., and another £3, 18s. 9d. How much did the third cost?
- (14)  $48028 \div 56$ .
- (15)  $\text{£1, 1s. } 11\frac{1}{4}\text{d.} \times 37$ .
- (16) Make up a sum, using cm., and work it.

Exercise 22.—Fractions— $\frac{1}{3}$ ,  $\frac{1}{6}$ ,  $\frac{1}{12}$ .

- (1) Draw an oblong 3 inches long and 1 inch wide. Colour  $\frac{1}{3}$  red and  $\frac{1}{6}$  blue.
- (2) Draw a square decimetre, and colour  $\frac{1}{3}$  blue.
- (3) Draw an oblong 9 centimetres long and 3 centimetres wide. Colour  $\frac{5}{8}$  of this blue.
- (4) With compasses draw a circle, and colour  $\frac{1}{3}$  red,  $\frac{1}{6}$  blue, and  $\frac{1}{12}$  green.
- (5) In a box there are 8436 beads. One-third are red,  $\frac{1}{6}$  are blue, and  $\frac{1}{12}$  are yellow. If the rest are white, how many white beads are there?
- (6) A man had £36, 13s. 6d. He spent  $\frac{1}{3}$  of it on a cow, and gave  $\frac{1}{12}$  of it to his son. How much money had he then?
- (7) Show by an oblong that  $\frac{1}{3}$  equals  $\frac{4}{12}$ .
- (8) An egg merchant bought 8784 eggs. One-twelfth were bad. If he sold the rest at 12 for a shilling, how much did he receive for them?
- (9) Draw an oblong 3 inches long and 1 inch wide. Show by colouring that  $\frac{2}{3} + \frac{3}{12} = \frac{11}{12}$ .
- (10) Draw an oblong 3 inches long and 1 inch wide. Show that  $\frac{5}{12} + \frac{1}{6} = \frac{7}{12}$ .
- (11) Draw a line to show that 4 times  $\frac{5}{12}$  inches =  $1\frac{8}{12}$ .
- (12) Draw lines to show the answer in these cases:  $1\frac{5}{8}$  inches +  $\frac{7}{12}$  inches;  $1\frac{2}{3}$  inches -  $\frac{5}{6}$  inches.
- (13) A piece of paper is  $2\frac{1}{2}$  inches long. Draw a line to show how long half the paper is.
- (14) Draw a line to show 4 times  $1\frac{1}{2}$  inches.

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- (15) A shopkeeper bought 6 lb. of tobacco at 6s. 8d. per lb., and sold it at  $5\frac{1}{2}$ d. per ounce. (16 ounces = 1 lb.) What profit did he make?
- (16) The chief peaks in the Cambrian Mountains are: Snowdon, 3560 feet high; Cader Idris, 2914 feet; Plinlimmon, 2469 feet; and Brecknock Beacon, 2910 feet. Find the total height in yards.
- (17) Make up a sum about twelfths and sixths, and work it.

### Exercise 23.—Reduction of Money—Upward.

- (1) How many £'s, &c., in (a) 924d. ? (b) 753d. ?
- (2) 6844 penny tram-tickets are used in a week. How much money is received for them ?
- (3) A grocer sells 4968 tins of mustard at a penny each. How much does he get for them ?
- (4) How many shillings, &c., in (a) 168 f. ? (b) 745 f. ?
- (5) A grocer bought 2484 candles. If they cost  $\frac{1}{4}$ d. each, what was the total cost ?
- (6) Oranges are sold at  $\frac{1}{2}$ d. each. How much is received for 18 boxes, each containing 428 oranges ?
- (7) 1874 school children are given a treat, which costs 3d. for each child. How much does the treat cost ?
- (8) A shopkeeper sold 1676 slate-pencils at 4 for a penny. How much money did he receive ?
- (9) Oranges are 2 for a penny. How much would a man receive for 1954 oranges ?
- (10) A baker made 2765 buns. If he sold them at a half-penny each, how much did he receive for them ?
- (11) A boy sells 198 halfpenny papers every day. How much money does he receive in 6 days ?
- (12) A man sold 6 cases, each holding 478 eggs. If he sold the eggs at 12 for 1s., what did he receive ?
- (13) At a concert for children 279 boys and 465 girls paid 3d. each. How much money was taken ?
- (14) A man bought 273 dozen exercise-books at 3d. a book. How much did they cost him ?
- (15) A newsagent sold 725 penny papers and 967 half-penny papers. How much money did he receive ?
- (16) Each of 147 boys receives a new sixpence, and each of 243 girls receives a new threepenny-piece. How much money is given away ?
- (17) A ruler costs 6d., and a rubber a penny. How much will 245 rulers and 491 rubbers cost ?
- (18) A man offers a ten-pound note to pay for 674 penny books. What change does he receive ?
- (19) Make up a sum about sixpenny bats, and work it.

### Exercise 24.—Symbolic Arithmetic.

- (1) Draw an oblong. Call the length  $l$ , and the breadth  $b$ . Write down (a) the total length of the two long sides; (b) the total length of the two short sides.
- (2) Draw another oblong, and call the length  $l$  and the width  $b$ . Write down the distance all round it.
- (3) One line is  $a$  inches long, and another is  $b$  inches long. Find their total length.
- (4) If  $x=5$  cm. and  $y=4$  cm., draw lines the following lengths: (a)  $x+y$ ; (b)  $2x+y$ ; (c)  $x+2y$ ; (d)  $2x-y$ ; (e)  $x-y$ ; (f)  $3x-2y$ ; (g)  $4x-2x$ ; (h)  $5y-2y$ .
- (5) If  $l=3$  inches and  $b=2$  inches, draw lines of these lengths: (a)  $l+b$ ; (b)  $l-b$ ; (c)  $2l-b$ ; (d)  $2b-l$ .
- (6) If  $m=3\frac{1}{2}$  inches and  $n=1\frac{1}{2}$  inches, draw lines the following lengths: (a)  $m+n$ ; (b)  $m-n$ ; (c)  $2m-n$ ; (d)  $m+2n$ ; (e)  $2m-2n$ .
- (7) Find what the letter stands for in the following: (a)  $6x=42$ ; (b)  $5y=45$ ; (c)  $9x=54$ ; (d)  $4a=48$ .
- (8) Find what  $m$  stands for in the following: (a)  $6m=72$ ; (b)  $8m=96$ ; (c)  $9m=81$ ; (d)  $8m=160$ ; (e)  $7m=210$ ; (f)  $11m=132$ .
- (9) What does  $a$  stand for in the following: (a)  $6$  cm. +  $8$  cm. +  $9$  cm. =  $a$ ; (b)  $6\cdot2$  cm. +  $5\cdot2$  cm. +  $6\cdot4$  cm. =  $a$ ; (c)  $12\cdot3$  cm. +  $8\cdot5$  cm. +  $7\cdot4$  cm. =  $a$ ; (d)  $6\cdot8$  cm. +  $9\cdot6$  cm. -  $5\cdot7$  cm. =  $a$ ?
- (10) What does  $x$  stand for in the following: (a)  $(37 \times 23) + (46 \times 29) = x$ ; (b)  $(136 \times 37) - (96 \times 19) = x$ ; (c)  $(£1, 6s. 8\frac{1}{2}d. \times 16) + (£1, 14s. 5\frac{1}{4}d. \times 18) = x$ ; (d)  $£3, 18s. 4\frac{3}{4}d. + £9, 12s. 8\frac{1}{2}d. - £4, 16s. 3\frac{1}{2}d. = x$ ; (e)  $(3\cdot6 \text{ cm.} \times 9) + (5\cdot4 \text{ cm.} \times 7) = x$ ?
- (11) Make up a sum about  $a$  inches, and work it.

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- (12) If a farmer had £1, 2s. 6d. more, he could buy two pigs, one of which is worth £3, 14s. 6d., and the other £2, 9s. 0d. How much money has he?
- (13) From £9, 16s.  $8\frac{1}{2}$ d. take the sum of £1, 2s.  $9\frac{1}{2}$ d., 18s.  $7\frac{1}{2}$ d., and 14s.  $6\frac{3}{4}$ d.

### Exercise 25.—Miscellaneous Exercises.

- (1) A line is 1.8 decimetres long. How long are 10 such lines? 20 such lines? 30 such lines?
- (2) A lady had £40, 17s. 6d. She shared  $\frac{1}{3}$  of it equally among 12 cripples. How much did each get?
- (3) In a collection-box there were 1279 sixpences. How much did this amount to?
- (4) A shopkeeper bought 55 boxes, each holding 48 balls. If the balls were worth 6d. each, what was their total value?
- (5) How much should I pay for 789 penny whips and 674 halfpenny tops?
- (6) A man bought 10 gross of balls at 3d. each. How much did he pay for them?
- (7) In a box there were 420 oranges. A merchant bought 15 boxes, and sold the oranges at a halfpenny each. How much did he receive for them?
- (8) Onions are 2s. 9d. per stone, and apples 3s. 6d. per stone. What is the cost of 59 stones of each? Write this sum out in one line.
- (9) John had £1, 18s.  $9\frac{1}{2}$ d. in the bank. His father had 17 times as much. How much had they together?
- (10) What is left out of £30 after buying 28 yards of cloth at 8s.  $7\frac{1}{2}$ d. per yard?
- (11) A grocer bought 28 sacks of flour, with 260 lb. in each sack. If he put the flour into 14-lb. bags, how many bags did he need?
- (12) A woman bought a sofa for 8 guineas, and 6 chairs at 17s.  $8\frac{1}{2}$ d. each. How much had she left out of 3 five-pound notes?
- (13) A man had £50 in the bank. He withdrew £6, 17s. 9d., £8, 12s. 6d., £4, 8s. 10d., and £3, 13s. 4d. How much had he in the bank then?
- (14) A class-room is 24 feet long, 21 feet wide, and 15 feet high. Find the total area of one long wall and two short walls.
- (15) Write down a sum about buying buttons; work it.

### Exercise 26.—Money Exercises.

- (1) A furniture dealer bought 16 chairs for £33, 12s. 0d. By selling them he gained £6, 0s. 0d. What did he sell each chair for?
- (2) In a mill there are 59 girls. If each earns 14s.  $9\frac{1}{2}$ d. a week, find their total wages.
- (3) What does this bill come to: 12 lb. of sugar at  $2\frac{1}{2}$ d. per lb.; 5 lb. of ham at  $10\frac{1}{2}$ d. per lb.;  $3\frac{1}{2}$  lb. of tea at 2s. 8d. per lb.; 4 lb. of butter at 1s. 5d. per lb.?
- (4) A draper gave 6 five-pound notes in payment for the following goods: calico, £7, 18s.  $8\frac{1}{2}$ d.; print, £4, 17s.  $9\frac{1}{2}$ d.; silk, £6, 15s. 10d.; cloth, £9, 14s. 11d. How much change did he get?
- (5) A farmer bought 36 lambs at 13s. 8d. each, and had enough money left to buy a cow for 20 guineas. How much had he at first?
- (6) A dealer went to market with £60. If he bought 59 lambs at 17s. 9d. each, how much had he then?
- (7) At a school treat there are 250 children, and each one is supplied with a pint of milk. How much does the milk cost at  $1\frac{1}{2}$ d. per pint?
- (8) Work out the following bill and find the total cost: 9 lb. of salmon at 1s. 7d. per lb.; 12 lb. of plaice at  $9\frac{1}{2}$ d. per lb.; 25 haddock at  $2\frac{1}{2}$ d. each; 16 lb. of soles at 1s. 4d. per lb.
- (9) A man bought 6 chairs at 18s. 9d. each, 2 couches at £3, 14s. 6d. each, and a carpet for £2, 11s. 7d. How much had he left out of 7 five-pound notes?
- (10) A dealer bought 35 sheep at £1, 12s. 6d. each, and sold them for £58, 8s.  $1\frac{1}{2}$ d. What profit did he make on each sheep?

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- (11) Draw an oblong 4 inches long and one inch wide. Colour  $\frac{1}{4}$  blue and  $\frac{1}{8}$  red.
- (12) Draw a line as long as the sum of the following: 2.3 inches, 3.4 inches, and 1.9 inches.
- (13) The length of a door is 7 feet and the breadth is 4 feet. Find the area of 26 such doors.
- (14) Make up a sum about buying tea, and work it.

### Exercise 27.—Triangles.

- (1) Draw an oblong 6 cm. long and 5 cm. wide. Draw a line from corner to corner, and colour one of the triangles thus made. What is the area of this triangle?
- (2) On coloured paper draw an oblong 4 inches long and 3 inches wide. Draw a line from corner to corner. Fasten one of the triangles thus made in your book, and find its area.
- (3) Draw an oblong 6·5 cm. long and 4·6 cm. broad. Draw a line from corner to corner. Write down how far it is round one triangle.
- (4) Draw an oblong 6·4 cm. long and 5·4 cm. broad. Draw lines from opposite corners. How many triangles have you made? Find the total distance round all the triangles.
- (5) A garden is 26 feet long and 18 feet wide. If a string is stretched from corner to corner, find the area of one of the triangles thus made.
- (6) Draw a figure 7·6 cm. long and 5·4 cm. broad. Divide it into two right-angled triangles, and find the total distance round *both*.
- (7) In a packet there were 12 dozen sheets of paper. If all these were cut across from corner to corner for decorations, how many triangles were made?
- (8) A room is 14 feet long and 22 feet wide. A string is stretched from corner to corner across the room. What is the area of one of the triangles thus made?

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- (9) A bag holds just 4 shillingsworth of pennies. How many such bags can be filled from 6982 pennies?
- (10) From London to Leeds is 182 miles. At the rate of a penny per mile, what will be the fare for 15 men?
- (11) Tom has saved £1, 4s. 6d., John has saved 4s. 9d. less than that, and Harry has saved 3s. 10½d. less than John. How much has Harry saved?
- (12) Find the seventeenth part of 6094.
- (13) Make up a sum about spending £2, 0s. 0d. on cricket material, and work it.

Exercise 28.—Reduction—Downward.

- (1) How many farthings are there in 76d. ? in  $84\frac{1}{4}$ d. ? in  $96\frac{3}{4}$ d. ? in  $298\frac{1}{2}$ d. ? in  $368\frac{1}{2}$ d. ? in  $487\frac{1}{2}$ d. ?
- (2) How many farthings are there in 5s.  $6\frac{1}{4}$ d. ? in 18s.  $9\frac{1}{2}$ d. ? in 19s.  $7\frac{1}{2}$ d. ? in 17s.  $10\frac{1}{2}$ d. ?
- (3) How many shillings are there in £16, 18s. 0d. ? in £18, 12s. 0d. ? in £25, 16s. 0d. ?
- (4) How many pence are there in £1, 9s. 6d. ? in £2, 18s. 9d. ? in £5, 16s. 7d. ?
- (5) How many halfpence are there in £1, 8s. 4d. ? in £2, 16s. 9d. ? in £4, 12s.  $8\frac{1}{2}$ d. ? in £9, 6s.  $10\frac{1}{2}$ d. ?
- (6) The buns at a treat cost £3, 14s. 6d. If they cost 1d. each, how many buns were bought ?
- (7) A grocer spent in a year £4, 16s. 7d. on penny stamps. How many stamps did he use ?
- (8) A toy dealer spent £5, 19s. 7d. on penny articles. How many articles did he buy ?
- (9) How many farthing toys can be bought for £3, 18s.  $7\frac{1}{2}$ d. ? for £5, 10s. 0d. ?
- (10) How many inches are there in 6 yards 2 feet 5 inches ?
- (11) Oranges are 2 for a penny. How many can be bought for £3, 16s. 9d. ? for £4, 3s. 4d. ?
- (12) A man spent £2, 16s. 6d. on jugs at 3d. each. How many did he buy ?
- (13) A greengrocer took £3, 17s. 8d. by selling oranges at 4d. per dozen. How many dozens did he sell ?

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- (14) 536 oranges are bought for £1, 16s. 9d., and then are sold at 1d. each. How much money is gained ?
- (15) There are 766 scholars in a school. How much money will be required to give each scholar 3d. ?
- (16) A boy saves 4d. per week. How many weeks will it take him to save £3, 16s. 8d. ?
- (17) There are two bowling-greens, each 42 yards long and  $41\frac{1}{2}$  yards wide. If a man walked 6 times round each green, how far did he walk ?
- (18) Make up a sum about penny toys, and work it.

### Exercise 29.—Miscellaneous Exercises.

- (1) A jeweller bought 17 watches at £1, 15s. 0d. each. If he gained half-a-guinea on each watch, how much did he sell the lot for?
- (2) During 48 weeks a man spent £49, 18s. 6d. on household expenses, £8, 17s. 9d. on clothes, and £14, 9s. 9d. on other things. What did he spend per week?
- (3) A greengrocer sold 15 gross of oranges at 16 for a shilling. How much did he receive for them?
- (4) In a house there are 8 panes of glass, each 34 inches long and 27 inches wide. How many square inches are there in all the panes?
- (5) There are 1760 yards in a mile. How many square yards are there in a road a mile long and 14 yards wide?
- (6) There are 7 doors in each of 6 houses, and each door is 7 feet high and 4 feet wide. What is the area of all the doors?
- (7) 24 barrels of apples cost 10 guineas. What is the price of one barrel?
- (8) £5, 19s. 6d. is given away to a number of boys and girls. If each got 4 pennies and 4 halfpennies, how many children were there?
- (9) What is the cost of 3 boxes of eggs, each containing 480, at 16 for 1s.?
- (10) £25, 14s. 6d. is shared equally among 27 boys. How much is left?
- (11) Draw angles of  $75^\circ$ ,  $15^\circ$ ,  $105^\circ$ ,  $70^\circ$ , and  $85^\circ$ .
- (12) Find the value of  $x$  in the following:
  - (a)  $1\frac{1}{3}$  inches +  $1\frac{5}{6}$  inches +  $2\frac{5}{12}$  inches =  $x$ ;
  - (b)  $6\frac{1}{2}$  inches -  $3\frac{5}{12}$  inches =  $x$ ;
  - (c)  $3\cdot25$  dm. +  $2\cdot3$  dm. +  $4\cdot6$  dm. =  $x$ ;
  - (d)  $5\cdot6$  dm. -  $3\cdot8$  dm. =  $x$ .
- (13) An oblong lawn is 16 yards long and 25 yards wide. Find the cost of making it at 2s. 6d. per sq. yard.
- (14) 600 buns are required for a school treat. If they cost 9d. per dozen, how much is paid for them?
- (15) Make up a sum about spending £10, and work it.

### Exercise 30.—Miscellaneous Exercises.

- (1) A draper bought a gross of ties at  $8\frac{1}{2}$ d. each, and sold them at 1s. 0d. each. How much did he gain?
- (2) A bricklayer uses 678 bricks a day. How many will he use in 19 weeks, if he works 6 days a week?
- (3) A railway saloon holds 38 persons. How many saloons would be needed to take 10906 people to a football match?
- (4) A draper bought  $3\frac{1}{2}$  dozen umbrellas for £24, 13s. 6d. How much did each one cost?
- (5) A poker is 18 inches long. How many of these can be made from 36 bars of iron, each 16 yards long?
- (6) A woman had 5 sovereigns. How much would she have after buying 8 stones of flour at 1s. 8d. per stone, 5 rolls of butter at 1s. 5d. per roll, 2 stones of sugar at 2s. 11d. per stone, and  $3\frac{1}{2}$  lb. of tea at 2s. 8d. per lb.?
- (7) A man shared a certain sum of money equally among 14 boys and 15 girls. If each got 14s.  $9\frac{1}{2}$ d., how much was given away?
- (8) On Easter Monday a tram-conductor took £9, 18s. 9d. He sold 398 twopenny tickets, 784 penny tickets, and the remaining money was for halfpenny tickets. How many of these did he sell?
- (9) A road is 58 yards long and 3 yards wide. Find the cost of making it at 5s. 0d. per square yard.
- (10) A lady gave  $a$  nuts to one boy, and  $b$  nuts to another. How many did she give away?
- (11) A grocer took the following sums in three days: £8, 17s.  $4\frac{1}{2}$ d., £2, 18s.  $6\frac{1}{2}$ d., and £9, 18s.  $5\frac{1}{2}$ d. If he paid £2, 18s. 6d. for wages, how much had he then?
- (12) Take sixteen thousand and eighty-four from 40102.
- (13) The sum of £37, 10s. was to be shared among 29 women and a man. If the man was to receive £4, 17s. 6d., how much was there for each woman?
- (14) How much are 700 shillings greater than 700 pence?
- (15) Find the cost of a thousand and forty penny stamps.
- (16) Find the sixty-eighth part of 59620.

### Exercise 31.—Miscellaneous Exercises.

- (1) A farmer bought a cart for £12, 10s. 6d., and a horse for 20 guineas. He sold both, gaining £1, 7s. 6d. on the cart, and five half-sovereigns on the horse. What amount did he sell them for?
- (2) Find the cost of 19275 oranges at 25 for a shilling.
- (3) Twenty-five gallons of milk are used every day in a hospital. If the milk costs 10d. per gallon, how much is paid for milk in 62 days?
- (4) A dealer paid £30 for 4 dozen Swiss watches. The carriage was £4, 10s. 0d. What must each watch be sold for so that he does not lose?
- (5) Show how you would make your little brother understand the number of square inches in an oblong 6 inches long and 4 inches wide.
- (6) What is the cost of 6 pieces of cloth, each 28 yards long, at 5s. 8d. per yard?
- (7) I have 4 pieces of silver wire measuring 1.2 cm., 6.5 cm., 8.4 cm., and 7.6 cm. Find their total length.
- (8) A man wishes 46 wooden buildings to be painted. Each building takes 26 lb. of paint at  $8\frac{1}{2}$ d. per lb. What is the total cost of the paint needed?
- (9) On a poultry-farm a man gets 24897 eggs in a year. He uses 10029, and packs the rest in boxes, putting 36 in each box. How many boxes will he need?
- (10) In a hall there are 26 rows of seats, with 4 seats in a row. If each seat holds 6 persons, how many people will the hall hold?
- (11) At a carpet-mill there are 36 rolls of carpet, with 75 yards in each roll. If these are cut up into pieces each 15 feet long, how many pieces will there be?
- (12) Write down in figures twenty thousand and four.
- (13) A woman owed the grocer £8, 4s. 6d. She paid him £2, 17s. 6d., and then bought goods worth £3, 15s. 9d. She afterwards paid him £4, 19s. 6d. How much did she still owe?
- (14) Make up a sum about the area of the desks in your class-room, and work it.

## Exercise 32.—Term Tests.

### A.

- (1) (a) Measure your closed book and your slate. How many square inches are there in the two ?  
(b) Measure in cm. the length and breadth of an open book. How far is it round both backs ?  
(c) Show by a drawing 49 square cm.
- (2) A grocer had £2, 1s. 9d. in his drawer. He sold 300 loaves at 4d. each, and 36 tins of biscuits at 1s. 8d. per tin. How much money had he after his sales ?
- (3) There are 6 class-rooms in the school. Each floor measures 24 feet long and 21 feet wide. What is the total area of the floors ?
- (4) If 26 overcoats cost £34, 13s. 4d., find the cost of 1.
- (5) In a brickyard there are 24 piles of bricks, and there are 180 bricks in each pile. If a barrow holds 36 bricks, how many barrow-loads are there ?
- (6) Find the value of 987 halfpenny stamps.

### B.

- (1) (a) Draw a line 1·4 cm. long, and another 6 times as long.  
(b) Draw an oblong 8 cm. long and 6 cm. wide. Colour  $\frac{1}{8}$  of it blue and  $\frac{1}{3}$  red.  
(c) A line is 6·5 inches long. Show how long  $\frac{1}{5}$  of the line is.
- (2) At a colliery 598 tons of coal are sent out every day. How many tons are sent out in 19 weeks if the men work 6 days per week ?
- (3) A man shared £43, 12s. 0d. equally among 16 poor men. How much did each get ?
- (4) Find the total amount of the following bill: 5 yards of cloth at 8s. 9d. per yard, 7 yards of lining at 1s.  $10\frac{1}{2}$ d. per yard, 6 yards of calico at  $7\frac{1}{2}$ d. per yard, and 4 dozen reels of cotton at  $2\frac{1}{2}$ d. each.
- (5) A farmer bought 14 sheep at £1, 19s. 9d. each, and five calves at £2, 12s. 8d. each. What did he spend ?
- (6) What number is eighty-five times as large as eleven hundred and seven ?

## C.

- (1) (a) Draw a line  $2\cdot7$  dm. long, and show  $\frac{1}{3}$  of it.  
 (b) Draw an oblong 6 inches long and 4 inches wide.  
     Colour  $\frac{1}{6}$  blue and  $\frac{1}{3}$  red.  
 (c) If  $\frac{1}{3}$  of an inch stands for 3d., draw a line standing for 3s. 6d.
- (2) How much will it cost to cover a school floor 24 yards long and 18 yards wide with boards at 10d. per square yard?
- (3) A draper had £50. He bought 26 pairs of blankets at 18s. 6d. per pair, and 18 towels at 9d. each. How much had he then?
- (4) A brick-kiln holds 27500 bricks. If a barrow holds 55, how many times will it be filled before all the bricks are taken away?
- (5) On a number of stalls there are 6894 penny articles. How much are they worth?
- (6) How much is £20, 16s.  $7\frac{1}{2}$ d. less than £41, 4s.  $8\frac{1}{4}$ d.?

## D.

- (1) (a) Draw the letter F in an oblong 4·8 inches long and 3·4 inches wide.  
 (b) Draw a line 6·8 dm. long, and divide it into 4 equal parts.  
 (c) Draw a line 5·3 inches long, and cut off 2·9 inches.
- (2) A small Union-Jack is 18 inches long and 15 inches wide. How many square inches are there in 2 dozen such flags?
- (3) A farmer bought 15 pigs at £1, 16s. 9d. each, and a cow for 15 guineas. How much did he spend?
- (4) At a concert 265 persons paid 6d. each, and 397 paid 3d. each. How much money was taken at the concert?
- (5) A man was away for 30 days for his holidays. During that time he spent £43, 7s. 6d. How much did he spend a day?
- (6) How many halfpenny oranges can be bought for £1, 3s.  $6\frac{1}{2}$ d.?

Exercise 33.—Money Exercises—not exceeding £100.

- (1) A grocer paid into the bank the following: a cheque for £15, 19s. 8d., 3 postal orders for a guinea each, 16 sovereigns, 13 half-sovereigns, 6 half-crowns, and 7 florins. How much did he pay in?
- (2) A dealer took the following: £18, 12s.  $9\frac{1}{2}$ d. on Monday, £15, 19s.  $4\frac{1}{2}$ d. on Tuesday, £8, 16s.  $7\frac{1}{2}$ d. on Wednesday, and £17, 13s.  $11\frac{1}{2}$ d. on Thursday. How much was taken during the four days?
- (3) A farmer bought 40 lambs at 18s. 9d. each, and paid for them with 8 five-pound notes. How much change did he get?
- (4) A man went to market with 3 sovereigns, 3 half-sovereigns, and five half-crowns in his purse. If he sold 12 sheep at £1, 18s. 8d. each, and 17 sheep at £1, 14s. 9d. each, how much money had he then?
- (5) A piano was marked 35 guineas, and a stool  $1\frac{1}{2}$  guineas. If a man bought both for £28, 10s. 0d., how much did the dealer take off the price?
- (6) Find the value of  $x$  in the following sums:
  - (a) £18, 17s.  $9\frac{1}{2}$ d. + £19, 18s.  $7\frac{1}{2}$ d. + £17, 14s. 6d. - £14, 19s.  $9\frac{1}{2}$ d. =  $x$ ;
  - (b) £24, 16s.  $4\frac{1}{2}$ d. + £29, 13s. 5d. - £18, 14s.  $9\frac{1}{4}$ d. =  $x$ ;
  - (c) (£1, 14s.  $8\frac{1}{2}$ d.  $\times$  43) - (£1, 15s.  $9\frac{1}{2}$ d.  $\times$  37) =  $x$ ;
  - (d) (£1, 15s.  $9\frac{1}{2}$ d.  $\times$  29) + (£4, 17s.  $8\frac{1}{2}$ d.  $\times$  7) =  $x$ ;
  - (e) (£13, 15s. 4d.  $\div$  14) - (£11, 3s. 9d.  $\div$  15) =  $x$ ;
  - (f) 
$$\frac{£22, 2s. 6d.}{18} + \frac{£10, 16s. 8d.}{16} = x;$$
  - (g) 246d. + 246s. + 29 half-crowns =  $x$ .
- (7) How many pence are there in £14, 18s.  $7\frac{1}{2}$ d.?
- (8) How many 3d. books can I buy for £16, 18s. 9d.?
- (9) A coal merchant buys 6 trucks of coal, each containing 8 tons, for £40, 6s. 0d. What is the price per ton?
- (10) At a picture-house 150 persons paid 4d. each, 175 paid 3d. each, and 275 paid 1d. each. How much money was taken?
- (11) Make up a sum about spending £10, and work it.

### Exercise 34.—Miscellaneous Exercises.

- (1) An egg merchant bought 4 boxes, each containing 2164 eggs. If he sold them at 1d. each, how much would he get for them?
- (2) It cost £12, 3s. 0d. to put a fence round a field 15 yards long and 12 yards wide. How much was the cost per yard?
- (3) A furniture dealer gave 8 five-pound notes in payment for  $3\frac{1}{2}$  dozen chairs at 17s. 9d. each. What change did he get?
- (4) There are 2240 lb. in a ton. If a man buys a truck of potatoes holding 6 tons, and puts them into 56-lb. bags, how many bags are needed?
- (5) Tom has  $a$  marbles. He gives  $b$  marbles to his brother. How many has he left?
- (6) 38 men are employed in a mill, and they are paid 38s. each per week. Find their total weekly wages.
- (7) Tasmanian apples are 10s. 9d. per case. If a green-grocer gave 2 ten-pound notes in payment for 34 cases, what change should he get?
- (8) A box of chocolates cost 1s. 5d. What would be the cost of 12 parcels, each containing 4 dozen boxes?
- (9) A man uses 19 balls of string, each measuring 266 inches, in tying up parcels. If it takes 14 inches for each parcel, how many parcels does he tie up?
- (10) Eggs are 2 for  $1\frac{1}{2}$ d. How many eggs are bought for £3, 17s. 6d.?
- (11) 39 barrels of apples cost £37, 15s.  $7\frac{1}{2}$ d. What was the cost of each barrel?
- (12) 18 yards of linoleum and 24 yards of carpet cost £9, 15s. 6d. The linoleum was 3s. 9d. per yard. How much was the carpet per yard?
- (13) What is the value of  $x$  in the following:
  - (a)  $5x = 45$ ;
  - (b)  $4x = 48$ ;
  - (c)  $6x = 96$ ;
  - (d)  $12x = 132$ ?
- (14) A field is 168 yards long and 67 yards wide. How many square yards are there in it?
- (15) Make up a sum about measuring a room, and work it.

### Exercise 35.—Long Division of Money.

- (1) 13 pigs are bought for £14, 19s. 0d. How much did each cost?
- (2) In a shop 21 chairs can be bought for £45, 3s. 0d. What is the price of one?
- (3) 31 men have the same amount of wages per week, and they are paid £96, 2s. 0d. altogether. What does each man receive?
- (4) Share £47, 6s. 0d. equally among 43 women?
- (5) 34 trucks of coal cost £215, 18s. 0d. What was the price of each truck?
- (6) A farmer sold 41 pigs for £215, 5s. 0d. What was the average price of the pigs?
- (7) 2 dozen suits of clothes cost £91, 4s. 0d. What was the price of a suit?
- (8) The railway fare for 43 men was £88, 3s. 0d. How much was this for each man?
- (9) What is the cost of a ton of hay, if 46 tons can be bought for £94, 6s. 0d.?
- (10) 51 boxes of oranges were sold for £33, 3s. 0d. How much was that for a box?
- (11) An ironmonger paid £188, 3s. 0d. for 53 fenders. What was the average price?
- (12) If 25 men are paid £53, 15s. 0d. for wages, how much is that each?
- (13) £54, 12s. 6d. was shared equally among 26 women. What did each get? How much was left?
- (14) 42 coats cost 2s. 0d. short of £145. How much did each coat cost?

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- (15) A wall is 369 yards long. What is its length in inches?
- (16) At a treat a gentleman gave each of 2164 scholars a toy which cost 3d. How much money did he spend?
- (17) A grocer put 136 stones of peas into half-pound packets. How many packets did he make?
- (18) Make up a sum about sharing a sum of money equally among 34 boys, and work it.

**Exercise 36.—Long Division of Money—continued.**

- (1) If 41 desks cost £88, 13s. 3d., find the price of each.
- (2) A farmer paid £64, 1s. 4d. for a flock of 31 sheep. What was the value of each sheep?
- (3) 26 pieces of cloth cost £53, 8s. 2d. What was the price of each?
- (4) Share £89, 19s.  $2\frac{1}{2}$ d. equally among 29 boys.
- (5) A merchant bought 37 bales of wool for £152, 10s.  $2\frac{1}{4}$ d. If all the bales were of equal size, what was the price of one?
- (6) During the month of April 43 sacks of oats were sold for £31, 19s.  $7\frac{1}{2}$ d. How much was this per sack?
- (7) 46 cases of Valencia oranges were bought for £38, 4s. 9d. How much was each case worth?
- (8) During the month of March 42 quarters of wheat cost £72, 14s. 3d. What was the value of a quarter?
- (9) Each of 5 Cheshire cheeses weighs 18 lb. If their total value is £3, 9s.  $4\frac{1}{2}$ d., how much is that per lb.?
- (10) The weekly wages of 58 men amount to £86, 10s. 4d. How much does each man earn?
- (11) A roll of carpet measures 52 yards, and is valued at £30, 17s. 6d. What is the price per yard?
- (12) If 2 flocks of sheep, each containing 31, are worth £91, 1s. 3d., how much is that for each sheep?
- (13) Share £51, 1s.  $10\frac{1}{2}$ d. equally among 65 men.
- (14) The railway fare for 53 men was £36, 10s.  $11\frac{1}{2}$ d. What did each man pay?
- (15) £130, 10s. 0d. is shared into 75 equal parts. What amount is each part?

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- (16) A road is 287 yards long and 5 yards wide. How many square yards are there in a road 14 times as long and the same width?
- (17) A man bought a horse and a cow for £53, 15s. 3d. If the cow cost £15, 8s. 9d., how much less than the horse did it cost?
- (18) Make up a sum about sharing £3, and work it.

### Exercise 37.—Symbolic Arithmetic.

- (1) Work the first twelve sums in the Oral Exercises.
- (2) What is the value of  $x$  in the following:
  - (a)  $5\cdot6$  in. +  $9\cdot8$  in. +  $7\cdot9$  in. +  $7\cdot6$  in. =  $x$ ;
  - (b)  $8\cdot7$  in. +  $5\cdot8$  in. +  $6\cdot8$  in. -  $9\cdot6$  in. =  $x$ ;
  - (c)  $7\cdot8$  in. +  $9\cdot7$  in. -  $6\cdot6$  in. -  $7\cdot3$  in. =  $x$ ;
  - (d)  $(5\cdot4$  in.  $\times 6) + (7\cdot8$  in.  $\times 5) = x$ ;
  - (e)  $(6\cdot3$  in.  $\times 4) - (3\cdot8$  in.  $\times 3) = x$ ?
- (3) Find the value of  $x$  in the following:
  - (a)  $7\cdot1$  cm. +  $6\cdot5$  cm. +  $3\cdot9$  cm. +  $8\cdot4$  cm. =  $x$ ;
  - (b)  $6\cdot4$  cm. +  $9\cdot6$  cm. +  $7\cdot6$  cm. +  $8\cdot5$  cm. =  $x$ ;
  - (c)  $4\cdot8$  cm. +  $5\cdot4$  cm. +  $6\cdot8$  cm. -  $2\cdot4$  cm. =  $x$ ;
  - (d)  $(8\cdot6$  cm.  $\times 6) + (6\cdot3$  cm.  $\times 5) = x$ ;
  - (e)  $(3\cdot5$  cm.  $\times 7) - (3\cdot8$  cm.  $\times 6) = x$ .
- (4) Find the value of  $x$  in the following:
  - (a)  $\frac{1}{3}$  in. +  $\frac{1}{6}$  in. +  $\frac{5}{12}$  in. =  $x$ ;
  - (b)  $\frac{1}{2}$  in. +  $\frac{3}{4}$  in. +  $\frac{3}{2}$  in. =  $x$ ;
  - (c)  $\frac{1}{2}$  in. +  $\frac{1}{3}$  in. +  $\frac{1}{6}$  in. +  $\frac{1}{12}$  in. =  $x$ .
- (5) Find the value of  $x$  in the following:
  - (a)  $\frac{3}{4}$  of 2s. 0d. +  $\frac{2}{5}$  of 5s. 0d. =  $x$ ;
  - (b)  $\frac{1}{8}$  of 2s. 6d. +  $\frac{3}{8}$  of 2s. 6d. +  $\frac{5}{8}$  of 2s. 6d. =  $x$ ;
  - (c)  $\frac{1}{3}$  of £1, 10s. 0d. +  $\frac{2}{5}$  of £2, 10s. 0d. =  $x$ ;
  - (d)  $\frac{1}{4}$  of £5, 0s. 0d. -  $\frac{1}{6}$  of 5 guineas =  $x$ .
- (6) Find the value of  $x$  in the following:
  - (a) £3, 19s.  $11\frac{1}{2}$ d. + £26, 18s.  $9\frac{1}{4}$ d. + £38, 14s. 9d. =  $x$ ;
  - (b) £36, 12s.  $4\frac{1}{4}$ d. - £26, 12s.  $5\frac{3}{4}$ d. =  $x$ ;
  - (c) (£1, 14s.  $7\frac{1}{2}$ d.  $\times 13) - (15s. 7\frac{1}{2}$ d.  $\times 15) = x$ ;
  - (d) (£88, 4s. 0d.  $\div 14) - (£46, 11s. 6d. \div 23) = x$ .
- (7) What does  $x$  stand for in the following:  
 $\text{£6, 18s. } 9\frac{1}{2}\text{d.} + \text{£9, 18s. } 7\frac{1}{2}\text{d.} + \text{£25, 14s. } 8\frac{1}{2}\text{d.} = x$ ?

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- (8) A farmer had 3 cows. If each cow gave 7 quarts of milk per day, how much did he get in 14 days?
- (9) If biscuits are sold at the rate of 10 for 1d., how many could I buy for £1, 18s. 10d.?
- (10) A dealer had eighteen hundred oranges. He sold 30 dozen to one man, 5 gross to another, and 8 score to another. How many had he left?
- (11) Make up a sum about  $x$  apples, and work it.

**Exercise 38.—Capacity—Pint, Quart, Gallon.**

- (1) How many quarts are there in **14** gallons? in **29** gallons? in **57** gallons? in **84** gallons?
- (2) How many pints are there in **8** gallons? in **18** gallons? in **28** gallons? in **96** gallons?
- (3) On a railway platform are **12** milk-cans, each holding **15** gallons. How many pints are there in them?
- (4) There are **36** gallons of paraffin-oil in a cask. How many quarts are there in **18** such casks?
- (5) Two boys went to fetch water. One boy carried a can holding **2** gallons **2** quarts; another carried a can holding **3** gallons **2** quarts. How many pints of water did they carry between them?
- (6) A milkman sold **6** gallons **2** quarts of milk every day. If he charged  $1\frac{1}{2}$ d. per pint, how much money did he receive?
- (7) Paraffin-oil is **9d.** per gallon. How much will **6** casks of oil cost if each cask holds **36** gallons?
- (8) There are **52** weeks in a year. If a family uses **7** quarts of milk each week, how many gallons are used in a year?
- (9) How many quarts in **52** pints? in **69** pints?
- (10) How many gallons in **48** qt.? in **59** qt.?
- (11) How many gallons in **72** pints? in **158** pints?
- (12) How many gallons are there in **80** half-pints?
- (13) If an engine uses **3** quarts of oil each week, how many gallons does it use in a year?
- (14) A milkman has **40** customers who take a pint of milk each per day. How many gallons do they require during the month of May?
- (15) Half-a-pint of water weighs **10** ounces. How many ounces do **2** gallons weigh?
- (16) A gallon of water weighs **10** lb. What weight of water is there in a barrel which holds **146** gallons?
- (17) A dealer buys paraffin-oil at **8d.** a gallon, and sells it at  $2\frac{1}{2}$ d. a quart. What does he gain on **36** gallons?
- (18) Make up a sum about your milkman, and work it.

### Exercise 39.—Concrete or Measuring Division.

- (1) To how many boys can I give 8d. each out of £1, 6s. 8d.?
- (2) Ham is 11d. per lb. How much can be bought for £4, 8s. 0d.?
- (3) How many jars of jam at 9d. a jar can I buy for £3, 18s. 0d.?
- (4) How many lb. of butter at 1s. 3d. per lb. can be bought for £1, 7s. 6d.?
- (5) A grocer spent £3, 7s. 6d. on bottles of pickles at 9d. a bottle. How many did he buy?
- (6) Tea is 2s. 8d. per lb. How many lb. can be bought for £4, 5s. 4d.?
- (7) How many fowls worth 1s. 8d. each can be bought for £4, 18s. 4d.?
- (8) £3, 17s. 6d. was spent in buying a number of cricket-bats at 2s. 6d. each. How many were bought?
- (9) A cheese cost 17s. 6d. If it was priced at  $7\frac{1}{2}$ d. per lb., how much did the cheese weigh?
- (10) Chocolate creams are 1s. 6d. per box. How many boxes can be bought for £3, 19s. 6d.?
- (11) Flour is 1s. 4d. per stone. How many stones are bought if £1, 13s. 4d. is spent on flour?
- (12) A ham cost £1, 2s. 9d. If it is  $10\frac{1}{2}$ d. per lb., what is the weight of the ham?
- (13) Oats are  $5\frac{1}{2}$ d. per packet. How many packets can be bought for £3, 6s. 11d.?
- (14) A boy earns 3s.  $4\frac{1}{2}$ d. a week. How many weeks will it take him to earn £8, 8s. 9d.?
- (15) Boys' shirts are 1s. 11d. each. How many shirts can a merchant buy for £7, 1s. 10d.?
- (16) At a party £7, 2s. 6d. is spent on toys for the children. If each toy costs  $4\frac{1}{2}$ d., how many toys are bought?
- (17) How many times can 3s.  $4\frac{1}{2}$ d. be taken away from £8, 15s. 6d.?
- (18) Half-a-pound of tea costs 1s.  $4\frac{1}{2}$ d. How many lb. can be bought for £6, 17s. 6d.?
- (19) Make up a sum about toys at  $3\frac{1}{2}$ d. each, and work it.

### Exercise 40.—Triangles.

- (1) A piece of ground is 64 yards long and 38 yards wide. What is its area? If a fence is fixed from corner to corner, what is the area of one triangular piece?
- (2) Figure (1) on page 3 of cover is a drawing of a luggage-label. Make a full-sized drawing of it in your exercise-book, and find its area. What is the area of the triangle?
- (3) Figure (2) on page 3 of cover is the drawing of the front of a clock. What is the area of the triangle at the top? What is the area of the whole drawing?
- (4) Make a drawing of the front of the clock one-quarter the full size.
- (5) Figure (3) on page 3 of cover is the drawing of an envelope. Draw a plan of this in your exercise-book half the size.
- (6) What is the total area of (a) the triangles marked A and B, and (b) the triangles marked C and D?
- (7) Find the area of the whole envelope.
- (8) Figure (4) on page 3 of cover is the drawing of the letter **N**. Cut this out in brown paper, and put in all the measurements.
- (9) Find the area of the space on which the letter stands.
- (10) What is the area of the two triangles cut out?
- (11) Hence, what is the area of the letter **N**?
- (12) Figure (5) on page 3 of cover is the drawing of a wall pocket. Make a drawing of this, one-quarter of the full size. Find the area of the triangle A B C.
- (13) Draw letter **M** as in figure (8) on page 3 of cover, and find the area of the triangle at the top.
- (14) Draw letter **A** as in figure (6) on page 3 of cover, and cut it out.

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- (15) A man paid a bill for £3, 18s.  $6\frac{1}{2}$ d., and another for £3, 19s.  $9\frac{1}{2}$ d. If he brought 19s. 8d. back with him, how much had he at first?
- (16) Write down a sum about buying buns at 1d. each.

### Exercise 41.—Metric System—The Metre.

- (1) Write down the value of each of the figures in the following lengths: **1·326** metres, **2·362** metres, **2·52** dm., **6·5** cm.
- (2) Write down the value of each figure in the following: **2·45** metres, **2·45** dm., **2·4** cm.
- (3) Find the value of  $x$  in the following:
  - (a)  $2\cdot34$  m. +  $3\cdot34$  m. +  $3\cdot25$  m. =  $x$ ;
  - (b)  $6\cdot54$  dm. +  $4\cdot45$  dm. +  $3\cdot67$  dm. =  $x$ ;
  - (c)  $4\cdot3$  dm. -  $2\cdot8$  dm. =  $x$ ;
  - (d)  $5\cdot8$  metres +  $6\cdot4$  metres +  $3\cdot5$  metres =  $x$ ;
  - (e)  $(1\cdot4$  m.  $\times 6) + (2\cdot3$  m.  $\times 5) = x$ .
- (4) How many dm. are there in **5·61** metres? How many cm. in **6·58** dm.?
- (5) Draw a line **7** metres long, letting **1** cm. stand for **1** metre.
- (6) A metre is **39·37** inches long. How many feet are there in **100** metres?
- (7) Write down the number of millimetres in each of the following: **3·54** metres, **6·38** dm., **2·9** cm.
- (8) A desk in your class-room is **2·7** metres long. How far would **6** desks reach if they were placed end to end?
- (9) A road is **368** metres long and **15** metres wide. How many square metres are there in it?
- (10) Write down in metres, decimetres, &c. each of the following: **1624** mm., **2638** mm., **3694** mm.
- (11) A mulberry garden is **26·4** metres long and **23·7** metres wide. How long is the fence all round?
- (12) In a French vineyard the vines are planted in rows, and each row is **65·5** metres long. What is the total length of **12** rows?
- (13) The length of a boy's step is **50** cm. How many metres will he go in taking **60** steps?
- (14) What is the value of  $x$  in the following: **25** metres + **25** dm. + **25** cm. =  $x$ ?
- (15) Make up a sum about measuring a room with the metre measure, and work it.

### Exercise 42.—Map of England—Railways—I.

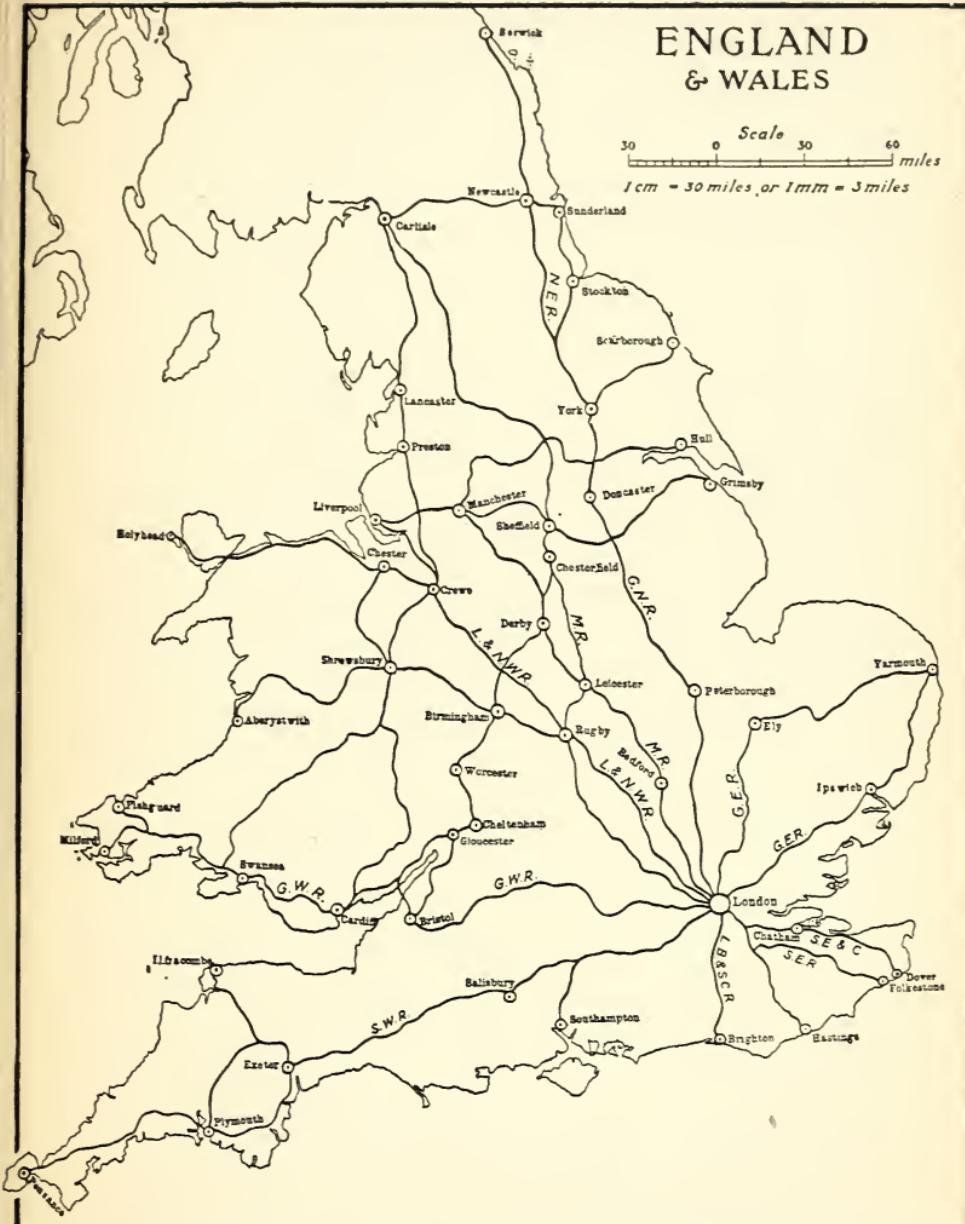
- (1) If 1 cm. = 30 m., draw lines to show (a) 40 m.; (b) 60 m.; (c) 100 m.; (d) 120 m.; (e) 200 m.
- (2) By measuring the map opposite in 4 sections in each case, find the distance from London (a) to Brighton; (b) to Hastings; (c) to Folkestone; (d) to Dover.
- (3) There are two railway lines from London to Yarmouth. How much is one longer than the other?
- (4) A man works in London and lives at Brighton. How many miles does he travel in six days if he goes up and down each day?
- (5) By measuring in 6 sections, find how far it is from London to Exeter.
- (6) Find the distance from (a) London to Peterborough; (b) London to York; (c) London to Newcastle.
- (7) There are two routes from London to Leicester, one through Bedford, and the other through Rugby. Which is the shorter route, and by how many miles?
- (8) Find how far it is from London to Carlisle by the Midland Railway through Bedford, Leicester, Chesterfield, and Sheffield.
- (9) What is the difference in miles between going from London to Carlisle by the Midland Railway, and going by the London and North-Western Railway through Rugby and Crewe?
- (10) What is the distance from (a) Crewe to Holyhead? (b) Liverpool to Sheffield? (c) London to Grimsby?
- (11) Complete the table by filling in the number of miles from London and the fares. Reckon a man's fare at 1d. per mile, and a child's fare at  $\frac{1}{2}$ d. per mile:

	Town.	Distance in Miles.	Man's Fare.	Child's Fare.
(a)	Yarmouth (by Ipswich).			
(b)	Newcastle . . . . .			
(c)	Chester . . . . .			
(d)	Exeter . . . . .			
(e)	Bristol . . . . .			

- (12) Find the cost of 8 men, 13 women, and 7 children travelling 67 miles at 1d. per mile (children half-fare).

# ENGLAND & WALES

Scale  
1 cm = 30 miles, or 1 mm = 3 miles



### Exercise 43.—Map of England—Railways—II.

- (1) The carriage of wool from Hull to Bradford is 15s. 10d. a ton. What is paid to the railway company for the carriage of 3 trucks, each holding 10 tons of wool?
- (2) The fare from London to Leeds is 15s.  $5\frac{1}{2}$ d., and from Leeds to Edinburgh 17s. If the fare is 1d. per mile, what is the distance from London to Edinburgh, going through Leeds?
- (3) The fare from London to Bristol is 16s. 6d. What is the cost for 12 footballers to go there and back, if they are charged a single fare and a quarter for the two journeys?
- (4) A Huddersfield merchant pays £20, 0s. 0d. for the carriage of 24 tons of woollen goods to the docks at Liverpool. What is the carriage per ton?
- (5) It costs £1, 7s. 6d. to bring a ton of fish from Grimsby to Birmingham. If a fishmonger receives 27 tons of fish in a year, how much does he pay for carriage?
- (6) The trip fare from Newcastle to Whitby is 3s. 6d. What amount is paid for 24 choirboys and 20 boys, if the boys travel half-fare?
- (7) It costs 2s.  $5\frac{3}{4}$ d. per ton to carry stone from Carlisle to Whitehaven. What amount does a contractor pay for the carriage of 50 tons?
- (8) The carriage for a ton of tea from London to Plymouth is £3, 7s. 6d. If a tea merchant receives 17 tons a year, how much does he pay for carriage?
- (9) A Nottingham merchant receives 56 tons of cotton goods in a year from Manchester. If the carriage is £45, 5s. 4d., how much does he pay per ton?
- (10) The carriage for oil is 15s. 10d. per ton. What is the cost of bringing 6 trucks, each containing 9 tons?
- (11) Make up a sum about travelling by train, and work it.

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- (12) The divisor of a sum is 37, the quotient is 25, and the remainder is 18. What is the dividend?
- (13) How many farthing buns could I get for £3, 17s.  $6\frac{1}{2}$ d.?

### Exercise 44.—Money Exercises.

- (1) On Bank Holiday a tram-conductor sold **2187** penny tickets. How much money did he take?
- (2) The tea at an old folks' treat cost **9d.** each. What did it cost to provide tea for **564** persons?
- (3) How much does the following bill come to: **5** lb. of tea at **1s. 10d.** per lb., **24** lb. of sugar at  **$2\frac{1}{2}d.$**  per lb., **6** lb. of coffee at **1s. 8d.** per lb., and **12** gallons of milk at **10d.** per gallon?
- (4) **23** tons of turnips cost **£83, 7s. 6d.** What was the price of one ton?
- (5) A greengrocer took **£6, 12s. 6d.** by selling cherries at **6d.** per lb. How many lb. did he sell?
- (6) A woman gave **2** five-pound notes in payment for **25** fowls at **4s. 9d.** each. What change did she get?
- (7) A farmer had **2** pigs. One weighed **17** stones, and the other **19** stones. If he sold them at **6s. 9d.** per stone, how much did he get for them?
- (8) **£25, 0s. 0d.** was collected for a treat for the children and old folks. **£9, 1s. 6d.** was spent on medals for the children, **£6, 8s. 7d.** on strawberries for the old folks, and the rest on packets of tea. How much did the tea cost?
- (9) Add together the following gardener's bill: **12** dozen pansies at  **$9\frac{1}{2}d.$**  per dozen, **7** dozen stocks at  **$8\frac{1}{2}d.$**  per dozen, **4** dozen geraniums at  **$3\frac{1}{2}d.$**  each, and **5** dozen asters at  **$7\frac{1}{2}d.$**  per dozen.
- (10) A draper spent **£6, 1s. 0d.** on men's shirts at **2s. 9d.** each. How many shirts did he buy?
- (11) At a cricket match **£20, 5s. 0d.** was taken for seats on the grand-stand at **1s. 6d.** each. How many people were on the stand?
- (12) How much does the following butcher's bill come to:  **$8\frac{1}{2}$**  lb. of lamb at **1s. 1d.** per lb., **5** lb. of beef at  **$9\frac{1}{2}d.$**  per lb., **5** lb. of mutton at **10d.** per lb., and **7** lb. of veal at  **$10\frac{1}{2}d.$**  per lb.?
- (13) How many sixpenny books could I get for  **$38\frac{1}{2}$**  guineas?
- (14) Make up a sum about buying potatoes, and work it.

### Exercise 45.—Symbolic Arithmetic.

- (1) Work the last ten sums in the Oral Exercises.
- (2) On a farm a man had  $a$  sheep in one field, and  $b$  sheep in another. How many had he in both?
- (3) What is the value of  $x$  in the following sum:  $(\text{£}24, 16s. 1\frac{1}{2}d. \div 21) + (\text{£}54, 5s. \div 28) = x$ ?
- (4) Write out in one line and then work this sum: A man had 3694 sheep. If he sold 268 on Monday, 324 on Tuesday, 1684 on Wednesday, and bought 187 on Thursday, how many sheep had he then?
- (5) On each of five fishing-boats there were 1264 lb. of fish. There were 84 lb. on each boat not fit for food. How much was good? Write out this sum in one line, and then work it.
- (6) A man bought 56 lb. of wool at 2s.  $1\frac{1}{2}$ d. per lb., and 81 lb. at 1s.  $9\frac{1}{2}$ d. per lb. Set out this sum in one line, and find the total cost of the wool.
- (7) Find the value of  $x$  in the following:  $(\text{£}1, 16s. 8\frac{1}{2}d. \times 29) + (\text{£}1, 18s. 7\frac{1}{4}d. \times 34) = x$ .
- (8) Find the value of  $x$  in the following sum:  $\text{£}26, 17s. 9\frac{1}{2}d. - \text{£}16, 15s. 10\frac{1}{2}d. + \text{£}18, 17s. 9\frac{1}{2}d. - \text{£}19, 18s. 7\frac{1}{4}d. = x$ .
- (9) What is the value of  $x$  in the following sum:  $(6384 \div 19) + (8473 \div 37) = x$ ?

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- (10) Each sheet of a newspaper is 48 inches long and 18 inches wide. If the newspaper has 4 sheets, what is the total area of 6 such newspapers?
- (11) The boys' schoolyard is 37 yards long and 28 yards wide. If a boy runs 8 times round it, how many yards has he gone?
- (12) The yard in sum 11 is asphalted, and cost 5s. 0d. per square yard. What was the total cost?
- (13) Add together the pence remaining after working the following sums:  $\text{£}26, 9s. 8d. \div 9$ ;  $\text{£}34, 18s. 7d. \div 7$ .
- (14) From London to Glasgow is 398 miles. If the railway fare is a penny per mile, what will be the total fares for 15 men from London to Glasgow?
- (15) Write down a sum, using  $a$  and  $b$  instead of figures.

### Exercise 46.—Miscellaneous Exercises.

- (1) In a school there is a table 1·25 metres long and 75 cm. wide. What is the distance round it in cm.?
- (2) In a certain district there are 2175 scholars. At the Coronation of King George V. each received a new penny. How much money was given away?
- (3) Strawberries are 3d. per lb. How many lb. can be bought for £2, 18s. 6d.?
- (4) A man paid 2d. per pint for peas. How much did he pay for 2 gallons 2 quarts?
- (5) 14 lb. make a stone. How many stones are there in 1848 packets of tea, each weighing 2 lb.?
- (6) A rail is 33 feet long. How many are required for 3 miles of railway lines? (*Two lines are required for a train. 1760 yards = 1 mile.*)
- (7) If the distance between London and Edinburgh is 405 miles, and a train goes at the rate of 45 miles an hour, how many hours will it take to go the whole journey and back, allowing 2 hours for stoppages?
- (8) A man can go a trip to Scarborough and back for 3s. 6d. If the total fare paid by a party of men is £4, 14s. 6d., how many men go on the trip?
- (9) Railway fare is 1d. per mile. If the total fare for 34 men to go from Blackpool to Leicester is £14, 0s. 6d., what is the distance?
- (10) A Canadian train travels 828 miles in 18 hours. At what speed does it travel per hour?
- (11) A father spent £4 in buying his daughter a dress and a hat. The stuff for the dress was £1, 14s. 0d., the making 12s. 6d., and other materials 15s. 4d. How much did the hat cost?
- (12) How many 1d. medals can be bought for £4, 16s. 9d.?
- (13) A table and 15 chairs were sold for £6, 18s. 9d. The price of the table was £1, 15s. 0d. What was paid for each chair?
- (14) A farmer took £40 to market. He bought 17 lambs at 17s. 9d. each, and 9 sheep at £1, 16s. 9d. each. How much had he then?

### Exercise 47.—Miscellaneous Exercises.

- (1) Three pennies weigh one ounce. How many ounces do £7, 6s. 9d. worth of pennies weigh?
- (2) A greengrocer bought 67 baskets of strawberries, each containing 6 lb. If he sold the strawberries at 4d. per lb., how much did he get for them?
- (3) The river Seine rose the following heights in 3 days: 26·2 cm., 18·6 cm., and 24·5 cm. How much did it rise in the three days?
- (4) A hospital committee required £90. They collected £27, 18s. 9 $\frac{1}{2}$ d. in sheets, 4 gentlemen gave a £5 note each, 8 gave a sovereign each, and 26 gave a half-sovereign each. How much more was needed?
- (5) In a certain county there were 5648 Marys who gave 1d. each to the Queen Mary Fund. How much money did they subscribe?
- (6) At the Coronation of George V. a gentleman spent £18, 17s. 6d. on toys for scholars. If they cost 3d. each, how many scholars received toys?
- (7) One Saturday a rent-collector had £3, 16s. 8d. in his pocket to begin with. How much had he after collecting from 56 houses at 6s. 9d. per week?
- (8) An exercise-book is 8 inches long and 6 $\frac{1}{2}$  inches wide. What is the total area in square inches of both backs in half-a-gross of such books?
- (9) A bicycle-wheel is 96 inches round. How many times does it turn round in going 1765 yards 12 inches?
- (10) 32 bricks build one square yard. How many bricks are required to build a wall 128 yards long and 3 yards high?
- (11) Tom had  $x$  shillings. If he changed them to pennies, how many pennies had he?
- (12) A man said, 'If I had £19, 16s. 8d. more, I could buy a piano costing 45 guineas.' How much had he?
- (13) Mary had 16s. 5 $\frac{1}{2}$ d., and Alice had 13s. 8d. If Mary gave Alice half-a-crown, how much would one have more than the other then?
- (14) How many toys at 5 $\frac{1}{2}$ d. each can I buy for 7s. 9 $\frac{1}{2}$ d.?

### Exercise 48. Examination Tests.

#### A.

- (1) (a) Draw a figure 1·7 dm. square. Show 100 square cm. on it.  
 (b) Measure the back of your exercise-book, and find how many dm. it is round 4 such books.  
 (c) Three pieces of ribbon measure  $3\frac{1}{2}$  in.,  $2\frac{3}{4}$  in., and  $1\frac{1}{8}$  in. Find the total length.  
 (d) One inch measures the same as 26 mm. How many cm. are there in 2 feet?
- (2) A page is 14 inches long and 11 inches wide. How many square inches would 37 such pages cover?
- (3) A man paid 9d. an hour for the loan of a horse. If he kept it a fortnight, how much did he pay?
- (4) Find the cost of 58 lambs at 13s. 8d. each.
- (5) A man bought 9 boxes of eggs, each containing 924. If he sold them at 7 for 6d., how much would he receive for them?
- (6) 18 men started on holiday with £55, 5s. 0d. Food cost £20, excursions 19 guineas, and the rest was spent in railway fares. How much was spent in fares?

#### B.

- (1) (a) If  $6\cdot5$  dm. +  $3\cdot8$  dm. +  $8\cdot6$  dm. =  $x$ , find  $x$ .  
 (b) Write down how you would find the cost of 36 books at 4d. each.  
 (c) Letting a cm. stand for a metre, draw a line to represent 3·5 metres.  
 (d) Draw an oblong 5 in. by 3 in., and show  $\frac{2}{3}$  of it.
- (2) A boy had  $a$  marbles. He won  $b$  marbles. How many had he then?
- (3) How often can a man take 3s. 4d. from 10 guineas?
- (4) Figure (7) on page 3 of cover is a drawing of the end of a house. Find how many sq. ft. there are in it.
- (5) Write down the following in metres, decimetres, &c.: 6384 mm., 5642 mm., 7893 mm.
- (6) Find the total cost of the following: 9 lb. of beef at  $10\frac{1}{2}$ d. per lb.; 8 lb. of mutton at 11d. per lb.; 6 lb. of ham at  $9\frac{1}{2}$ d. per lb.; 7 lb. of veal at 1s.  $0\frac{1}{2}$ d. per lb.

C.

- (1) (a) Draw an oblong 6·5 inches long and 3 inches wide. Colour  $\frac{1}{5}$  blue.
- (b) Draw a line  $2\frac{1}{2}$  inches long, and show how many twelfths of an inch there are in it.
- (c) Make an oblong 5 inches by  $1\frac{1}{8}$  inches, and colour  $\frac{1}{4}$  of it blue.
- (d) Draw an obtuse-angled triangle.
- (2) Three pennies weigh an ounce. What is the value of 756 ounces of pennies?
- (3) A wheel is 52 inches round. How many times does it turn round in going 2600 yards?
- (4) I sold 37 umbrellas for £32, 7s. 6d., thus gaining 1s. 8d. on each. What did they cost me each?
- (5) Find the cost of 75 pairs of shoes at 13s.  $6\frac{1}{2}$ d. a pair.
- (6) A school was decorated with right-angled triangular flags, the sides forming the right angle being 12 inches and 9 inches. If there were 68 flags, how many square inches were there in all of them?

D.

- (1) (a) Draw a square dm., and colour  $\frac{1}{4}$  of it blue.
- (b) Draw a figure to show 56 square cm.
- (c) Draw a figure 1·7 dm. long and 1·5 dm. wide, and show with blue crayon 1 square dm.
- (d) Draw an acute-angled triangle.
- (2) 27 yards of cloth cost £12, 4s.  $1\frac{1}{2}$ d. What is the price per yard?
- (3) Bills are 3s. 8d. per 1000. How many can be bought for £9, 10s. 8d.?
- (4) How many 3d. packets of cocoa can I get in exchange for 26 lb. of coffee at 1s.  $10\frac{1}{2}$ d. per lb.?
- (5) In 48 weeks a man and his son earn £100. The son earns £12, 8s. 0d. How much does the father earn each week?
- (6) On a poultry-farm a man gets 18274 eggs. He keeps 178 for home use, and sells the rest in equal numbers to 39 grocers. How many does each grocer buy?



